





The Journal

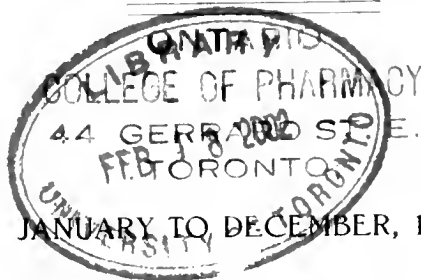
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American Pharmaceutical Association

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JOSEPH P. REMINGTON

JOSEPH PRICE REMINGTON, Ph.M.

Born Philadelphia March 26, 1847—Deceased January 1, 1918.

Joined the American Pharmaceutical Association in 1867; elected president in 1892; succeeded Dr. Charles Rice (deceased) in 1901 as Chairman of the Revision Committee of the United States Pharmacopoeia, and elected to the same office for the Ninth Revision. Presided at the Seventh International Pharmaceutical Congress in 1893, represented the United States at the Eighth Convention in Brussels, 1896. Presided over the Section on Pharmaceutical Chemistry at the International Congress of Chemistry, 1912. Dean of the Philadelphia College of Pharmacy since 1893; succeeded William Procter, Jr., as Professor of Pharmacy in 1874.

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JOSEPH P. REMINGTON.*

I have been informed that Professor Remington is very low, and that possibly we may never have the opportunity of another visit together. One may be excused, in a case like this, for addressing a mutual friend, even though the subject be painful to both, and thus I take the privilege of writing you, who, now resident in the city home of Professor Remington, as editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, will be in affiliating sympathy with persons like myself, afar off.

These many years ago Professor Remington and I met first in Indianapolis, Ind., at the meeting of the American Pharmaceutical Association, 1879. Professor Remington was then in the vigor of his early manhood. I studied him as a hero, because even at that date his magnificent services to pharmacy had led everyone to consider him as perhaps the most conspicuous incoming American engaged in pure pharmacy in all its outreaches. A professor in the Philadelphia College of Pharmacy; a successful conductor of a drug store in the city of Philadelphia; schooled as he had been with such men as Procter, Parrish and Maisch, with the practical experience that came from personal effort under that Nestor of American pharmacy, Dr. Edw. R. Squibb, in whose laboratory Professor Remington, close to Squibb, served an apprenticeship,—this, too, years after he began his apprenticeship opportunity with the established house of Charles Ellis Sons & Co., of Philadelphia. One can but comprehend that to the present writer the chance, to one whose opportunities had not been great, of meeting this celebrated pharmacist, was an epoch, an event.

May this writer not add that possibly but for Professor Remington he might not himself have been long in the service of pharmacy? Remington it was who championed his cause in a personal way at Indianapolis, even volunteering, and reading, the paper prepared by the writer for that occasion, "On the Conditions Necessary to Successfully Conduct Percolation."

Close together have we been since that date, each serving in the field of pharmaceutical opportunity, these fields often seemingly separated, and yet united as a whole. In my praise of Remington, I voice what seems sure to me to be the sentiment of thousands of pharmacists who, in separated sections of the country, have been in close touch with this leader of us all, Professor Joseph P. Remington, in Philadelphia.

* The editor has received permission to print this letter from Prof. John Uri Lloyd, a life-long friend of the deceased. The references to the latter's life and character have prompted this action. Owing to the nearness of publication day, other matter relating to Professor Remington will be deferred for the February number.

¹ See *Proceedings of the American Pharmaceutical Association*, 1879, p. 682.

My dear Mr. Eberle: May I not, in the frankest way possible, express to you these thoughts, and may I not accept in expressing them, as a lingering member of the associates of Professor Remington who have passed away, as well as thousands of pharmacists in America who may not feel at liberty, as do I, to take that privilege, that I may add to the foregoing even yet, a further word?

Among the past close friends of Professor Remington, none of whom are now with us, I recall Professor Saunders, of Canada, a bosom friend of Remington; they attended, the National meetings and roomed together. Together they visited England, ovations marking their course in that country. So very close were they that the terms Joseph and William only, were used in conversation. That very talented man, Professor John M. Maisch, a teacher-companion of Remington, attended, always in Remington's company, the meetings of the American Pharmaceutical Association; together they came, never a word of discord between them; companions were they, until came the announcement at our Chicago American Pharmaceutical Association meeting (1893) that Professor Maisch had passed away. Dr. Charles Rice, that remarkable man whose biography has never yet been written, and in my opinion, never can be, was to Professor Remington, as to all others, an inspiration. Of Edw. Parrish, to whom Remington was an assistant, Professor Remington always thought and spoke with the utmost veneration, which was also true of Professor Wm. Procter, Jr. And be it said that the wealth of pharmaceutical opportunity that came to Professor Remington from these teachers and companions, was distributed by him to the world-at-large. To thus name all the companions of the olden time, made by Professor Remington, would be to mention every teacher who had accomplished or contributed to the cause during the period of Remington's early activity.

But not alone with such as these did Prof. Remington fraternize. Not a student, within forty years, has been graduated from the College of Pharmacy in Philadelphia, but feels that he is a close friend of sympathetic Professor Remington. It has been my privilege to meet many hundreds of these graduates of that long-established institution, and never, so far as I can recall, did a discussion connected with pharmacy occur but that the name of Professor Remington came in as that of one the speaker knew personally. This, I will say, is literally true, because every member of the classes of the Philadelphia College of Pharmacy for decades has been to Professor Remington a personal charge, and Remington, being in the department of pharmacy, is naturally very close to any student whose life-work is to be pharmacy.

But what of other companions? To my mind's eye they arise, everywhere.

Wherever there was to be an event in pharmacy that would bring together men imbued with the cause of pharmacy, Remington was sure to be present, and not only was he present, but actively so. A leader among them all was he. If an address was to be made, Remington was the one selected for the purpose, in whatever direction it may have been necessary. And, Remington never failed. At alumni meetings and college reunions held by pharmaceutical organizations Remington was considered one of the members, as much so as though his college course had been in their college. Be it known, to Professor Remington the cause of pharmacy was cosmopolitan, and he considered himself to be concerned in every phase of pharmaceutical effort. Whoever was teaching, whoever was studying, whoever was contributing in any direction, and from any direction, was in his circle.

Perhaps the most enjoyable of all occasions at the various meetings of pharmaceutical associations that it came my privilege to attend, were those of the alumni of the Philadelphia College of Pharmacy, and in these always Professor Remington was not only an integral part, but a cherished guest; a representative of the world-at-large, as well as of the College to which he devoted his special time.

And not alone with those concerned in manipulative pharmacy such as becomes the charge of the apothecary, but of men engaged in pharmaceutical activities on a very large scale, such as came into the field with the entrance of the factory

manufacturer, "the manufacturing pharmacist," did Professor Remington affiliate, by right of education. His personal experience with Dr. Squibb, the connection his preceptors, Procter and Parrish, held with such as Tilden and Company, Charles Ellis Sons and Company, Wm. R. Warner and Company, Hance Brothers and White, Charles Bullock, Sharp and Dohme, Frederick Stearns, of Detroit, and others of the struggling pioneers of those days, led Professor Remington to a kindly affiliation with those establishing, and conducting such industries as these. He appreciated that they had become a part in American pharmaceutical evolution, and that in their activities the factor of pharmaceutical education of the individual should dominate. And hence we note his kindly affiliation and helpful services to those who came in later, principal among whom may be mentioned Parke, Davis & Co., of Detroit, and Eli Lilly & Co., of Indianapolis. Well do I remember how, when Mr. Eli Lilly, founder of the house, gave a home banquet on a special occasion two decades or more ago, Professor Remington made the journey from Philadelphia to Indianapolis. And surely Remington would have made that journey if for no other reason than to please his pupil, J. K. Lilly, whose pharmacy instruction was taken under Professor Remington in the Philadelphia College of Pharmacy. Well do I remember that happy occasion, which it was also my privilege to enjoy.

As would be supposed from the congenial nature of Professor Remington, which so impressed everyone he met, his family relationship is most delightful. To touch this phase of his life is a very delicate subject, even in a letter to a mutual friend, but yet I cannot refrain from expressing to you the pleasures that have come to me in the visits to and from Professor Remington's family, and members thereof. To enter that home, is like entering one's own, because of the whole-souled hospitality of each and every member. To this it may be added that Professor Remington's love and affection for his wife and children, as shown to his personal friends, is only paralleled by a reciprocity from themselves. Taken all in all, a very happy and a very charming family is the Remington family I have in mind.

My dear Mr. Eberle: I feel that this letter is much too long, and yet its space would be much too short were one to attempt to present even the high lights of a biography of Professor Joseph P. Remington. I have recorded but a touch of what came to me in the passing along of a discursive letter, as thought crushed upon thought, event upon event, opportunity close following opportunity in the direction of what I felt needs be said, and yet for lack of space could not be said. Painful though it is to think that I am writing this letter during what may possibly be the closing period of the life of this companion and friend, it is yet a melancholy pleasure to feel that I am not passing the bounds of prudence. All I have said and more, will be felt by others who were more fortunate, others who were in daily touch with Professor Remington, as it was not my privilege to be, and who may not, as do I, assume the responsibility of intruding a personal letter.

Strange how insidiously Time moves us in and out. Of those close in the companionship of Professor Remington and myself in days long gone by, very, very few are living.

May I not close this letter with a sentence from "The Code of Manu"—

"As drifting logs of wood may haply meet
On ocean's waters surging to and fro,
And having met, drift once again apart,
So, fleeting, is the intercourse of men.

"E'en as a traveller meeting with the shade
Of some o'erhung tree, awhile reposes,
Then leaves its shelter to pursue his way,
So men meet friends, then part with them forever."

Sincerely yours,
JOHN URI LLOYD.



CHARLES H. LAWALL

CHARLES HERBERT LAWALL,

PRESIDENT-ELECT OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

As announced in the December issue of the JOURNAL, Charles H. LaWall has been elected president of the American Pharmaceutical Association.

The President-elect was born in Allentown, Pa., 46 years ago, the son of a druggist of that city, who in 1876 moved to Bloomsburg, Pa., where he had accepted a position with the wholesale and retail drug firm of Moyer Bros., in whose establishment the junior LaWall received his early business training, after having been educated in the public schools and at the State Normal School, located at Bloomsburg. His employment in the drug store was a matter of choice, for he early evidenced an interest in the sciences and sought knowledge by studying growing plants and improvising a small chemical laboratory even before attending college.

In 1891, he matriculated at the Philadelphia College of Pharmacy and graduated here in 1893. The degree of Master in Pharmacy was conferred upon him by the same institution in 1905. He sought employment in Philadelphia which offered the opportunity of a more extended acquaintance with the branches that interested him most, and for thirteen years he was engaged in the laboratories of Smith, Kline & French Company. In 1901, Charles LaWall succeeded Frank G. Ryan as Instructor in the Theory and Practice of Pharmacy in his *Alma Mater*, and in 1905 he was elected Associate Professor in the same department.

In 1903, he became associated with Dr. Henry Leffmann, a prominent chemist of Philadelphia, and when the latter decided to retire Prof. LaWall acquired sole ownership of the business. Since 1904 he has been chemist of the Pennsylvania State Dairy and Food Department, and has also served the Federal Government in a related capacity. In 1909 he succeeded Dr. Leffmann as lecturer in the Course of Applied Organic Chemistry at the Wagner Free Institute of Science. He is a joint author with Dr. Leffmann of a book on Chemistry; he assisted in the last revision of the United States Dispensatory and is a frequent contributor to pharmaceutical and chemical publications. Prof. LaWall is a member of the U. S. Pharmacopoeia Revision Committee of which he is secretary, and also chairman of the Subcommittee on Inorganic Chemicals.

His papers presented to the various sections of the American Pharmaceutical Association speak in part for his interest in the organization that has honored him with the presidency. He was vice-president in 1915; from 1907-09 he was secretary of the Section on Education and Legislation and in 1910 the chairman; in 1911-12 he was secretary of the Scientific Section.

Mrs. Charles H. LaWall (*nec* Miss Millicent Renshaw) is also a graduate in pharmacy and renders valuable assistance in the many activities of her husband. Both are regular attendants and workers at the annual conventions of the A. Ph. A.; the latter joined the Association in 1896 and the former in 1905. E. G. E.

EDITORIAL

E. G. EBERLE, Editor

253 Bourse Bldg., PHILADELPHIA

THE VALUE OF INDIVIDUAL EFFORT.

“I WOULD not be one of those who would drive a nail into mere lath and plastering. Such a deed would keep me awake nights. Give me a hammer and let me feel for the furring. Drive a nail home and clinch it so faithfully that you can wake up in the night and think of it with satisfaction, a work at which you would not be ashamed to invoke the Muse. * * * * * Every nail driven should be as another rivet in the machine of the universe, you carrying on the work.”—Henry David Thoreau.

We have often spoken of coöperation; these are times when the loyalty of every individual counts, there should be no neutrals. Just as concerted effort is mandatory in the cause of our country, so is that of every individual pharmacist for pharmacy, so that each one may become a strong support by faithfully doing his part. The great trouble with pharmacy largely is, that too many are standing aloof from doing so, because they seem to feel that what they can do is of little consequence. And still each one has a part in pharmacy and its service to humanity, and has neither right to withdraw nor withhold his support nor belittle his opportunity.

The general, in preparing his plans, cannot ignore the part of the private in the battle; the gunner is dependent on the workman in a far-away munition plant. The medical man must rely on the pharmacist in the pharmaceutical laboratory, if not more directly—on the one who prepares his *armamentarium*. Not one can fail without destroying the efficiency of the other, it is a serious delinquency to disregard the work of any one of them.

What is needed is enthusiasm, which, as Emerson said, “is the leaping lightning, not to be measured by the horse-power of the understanding.” Someone else has said, “enthusiasm is the light that leads and the strength that lifts men on and up in the great struggles of scientific pursuits and professional labor.” It needs that, we believe, in pharmacy, in the importance of its service, and it is the thought of the individual, that his part is of little consequence, that keeps from pharmacists and pharmacy the recognition they and it are entitled to.

The thing is to do our part well, better than it has ever been done before; there may be “laths and plastering” in the construction of the drug business, but let us “feel for the furring,” with the hammer of resolve, drive the nail of our determination into the purpose to progress and clinch it with enthusiasm. Believe firmly that pharmacy has an important part in medicine, and that when it is ignored or neglected, the patient will suffer. The medical man, surgeon or doctor, must look back to the unimportant individual (?), the pharmacist, the person whose part taken by itself may be smaller than his own, yet whose part, if not well done, will prove a serious handicap to his success. And this is applicable to the

pharmacists' service in the Army and Navy. That which the individual can do, and do well, is of real importance, and without doing that, there is deficiency; reversely his coöperation makes for efficiency.

So, then, with the beginning of the year let us drive home, into the thoughts of all pharmacists, the value of individual effort for pharmacy and the Association; each one can do an essential part in contributing to its larger possibilities, by increasing the membership and by participation in the work. One is the minimum, there is no limit to the number of additions each member may be willing to propose and indorse for affiliation in the American Pharmaceutical Association. Every new member adds strength to the organization and makes for its greater possibilities. Be optimistic and enthusiastic, anyone can be pessimistic and indifferent.

E. G. E.

THE IMPORTANCE OF DRUG PLANT CULTIVATION IN THE UNITED STATES.

AMONG the many problems confronting the American manufacturer of drug products, that of securing adequate supplies of crude drugs is of increasing importance. Thus far the cultivation of medicinal plants in the United States has not assumed very great proportions, although many drugs are being supplied in sufficient quantities for domestic needs. A great deal of misinformation has been circulated on the topic and many people have been led to believe that cultivation of medicinal plants is just as simple a matter as the growing of vegetables or crops. This is not the case. We must remember that such plants as Belladonna, Digitalis, Hyoscyamus, Aconite, etc., formerly obtained from Europe, grow wild in their native habitat and are picked by cheap labor, thus making the cost to the purveyor very low. The growing of medicinal plants in the United States, which is not the native habitat of the drugs enumerated above, is a science which requires expert training and supervision. We must provide artificially the conditions under which these plants grow best and the cost and labor is many times what is paid the European peasant who collects drug plants.

Two methods of overcoming the high cost of cultivating drug plants are open to the American grower: first, increasing the number of harvests in one season; second, increasing the amount of active constituent. Experiments have demonstrated that as many as four and five harvests of Belladonna can be obtained in one favorable season if the leaves are stripped from the plants when they attain a certain maximum growth. In former years it was customary to cut down the entire plant at harvest time, thus greatly reducing the yield of Belladonna leaf. There is very little difference in the activity of the leaf of the third or fourth harvesting in comparison with that of the first harvesting as far as the amount of active constituent is concerned.

With regard to increasing the amount of active constituent, experiments

show that by careful selection of seed it is possible to increase in some plants the amount of active constituent three or four times that required by the Pharmacopoeia. Experiments in cross-pollenization have not been successful so far as increasing the amount of active constituent goes. In 500 Belladonna plants grown at Glenolden, Pa., last year the amount of active constituent varied from below $\frac{1}{10}$ of 1 percent to as high as 1.2 percent; the general average was about $\frac{6}{10}$ percent, or twice the Pharmacopoeial requirement. Seed from the plants which yielded a high percentage of alkaloids, when used for propagating purposes in succeeding years, usually produce high alkaloid-containing plants, although this is not always the case. We are confronted with variations due to numerous causes, which must be carefully studied if the drug-plant industry in the United States is to be placed on a competitive footing with that of Europe after the war.

Physiological and chemical tests on the American-grown plants show that some of the old ideas regarding the activity of plants were erroneous; for instance, it has not been so long since American Cannabis was not thought fit for medicinal use, but it has been clearly demonstrated that it is just as active and satisfactory as the Indian Cannabis and our Pharmacopoeia now recognizes it. For many years it was thought that Digitalis leaves of the first year's growth were not active and that only leaves of the second year's growth gave satisfactory results in medicinal preparations. This idea has been shattered also and the Pharmacopoeia now makes no distinction between the first and the second year leaf and rightly.

The problem of properly drying plants after they have been cultivated is in some cases a difficult one, owing to the frequent changes in climate at harvest time. However, this problem is also being solved so that the natural color is preserved to a large extent in the cultivated plants when they are dried, thus obviating any criticism as regards the color of the finished preparations. While the problem of color in pharmaceuticals is merely a psychological one, it seems to be difficult to dispel the belief, especially among laymen, that color is a criterion of strength or activity.

Were it not for the chemical and physiological methods of assaying and standardizing drugs, the fact that American-grown drug plants are sometimes very high in their yield of active constituents would be a source of danger. Obviously, a tincture of Belladonna made from a drug which assays three times the U. S. P. strength would be a dangerous preparation if used in the ordinary dosage. However, the assay shows what the strength of the drug is and what the strength of the finished product is and we can make our dilutions or concentrations accordingly.

The scarcity of some of our important botanical drugs is apt to lead to adulterations. It is fortunate, therefore, that the Government has an organization (Bureau of Chemistry) for detecting adulterants, etc., under the Food and Drugs

Act, thus protecting the physician, the pharmacist and the patient. Nevertheless, there is always opportunity for the perpetration of fraud and "Safety First" must be our motto when purchasing crude drugs and preparing galenicals.

The American crude drug industry has made remarkable advances since 1914, and with the advances that are being made each year and the scientific investigations conducted in the various research laboratories, there seems to be no doubt as to its future permanency.

H. K. M.

PHARMACY AND THE WAR.

PROF. ALEXANDER TSCHIRCH about a year ago delivered a lecture before the German Pharmaceutical Society in which he stated that "the production of a sufficient quantity of food is essentially a botanical problem, as meat is only vegetable food converted by animals into a suitable form." The thought can, in a way, also be applied to the production of vegetable materia medica products.

President C. A. Hill, in his presidential address at the annual meeting of the British Pharmaceutical Conference, July 11, 1917, spoke of the "British Medicine Supply in War Time," in which he referred to the shortage of botanical drug supplies.

A symposium on drug culture constituted part of the program of the Scientific Section at the Indianapolis meeting of the American Pharmaceutical Association. Thus the importance of plant culture is recognized in all countries, and present conditions have intensified the interest of the subject.

Whether the deficient supply of official drugs, the possibility of substituting specially cultivated or other drug-yielding plants for them, warrants the issuance of a supplement to the Pharmacopoeia in which other medicinal agents are to be included, may be a matter worthy of consideration. It is not contended that the necessity exists, but the Government has permitted the use of some non-official drugs, and it might be deemed advisable, in some instances, to give pharmacopoeial sanction also, and at the same time make advantageous changes in certain menstrua, solvents, vehicles, standards and tests; or, it may be more expedient to have these matters taken up in the National Formulary, should the proposition be worthy of serious consideration.

Under *General Principles to be Followed for the Ninth Revision of the Pharmacopoeia* (13, p. XXXIII) is the following: "Supplement.—It is recommended that the Committee of Revision be authorized to prepare a supplement to the Pharmacopoeia at any time they may deem such action desirable." It must be remembered that the conditions now existing are temporary; on the other hand, that the next revision of the Pharmacopoeia will probably not be completed before 1925. Some official drugs, oils, etc., are unobtainable; alcohol, sugar and glycerin are, in a degree, restricted; progress in drug culture may yield drugs

of which the galenical preparations differ physically from those heretofore prepared. There is large demand for preparations for which standards should be provided. This is only suggestive and should be studied carefully from the standpoint of necessity and helpfulness; the prompting is an expression of a desire, not to be delinquent in discovering the needs of pharmacy.

President C. A. Hill, in his address, recommends the promotion of research work by pharmacists in investigation of the extent of deterioration of drugs, chemicals and galenicals under normal conditions of the pharmacy, and also as to how far physical constants are good criterions of galenical preparations manufactured in accord with official directions.

The concluding paragraphs are particularly interesting to us at this time. He recommends the formation of a Public Policy Committee, "on which every side of pharmacy should receive representation proportionate to the merits and magnitude of the interests concerned." Very much like the recommendation of Ex-President Frederick J. Wulling for the organization of the American "body-pharmaceutic." President Hill continues, "the Government to-day will not deal with individuals, but only with associations representing large interests. Such a body could claim to be truly representative of pharmacy, and its views would command attention."

The address concludes: "The third year of the war (July 1917) is drawing to a close, and when we consider how complex a thing is an adequate and complete service of medicine, the difficulties which have had to be met, and how few have been the cases in which supplies have failed; that the standard of quality in the medicine service has never for a moment relaxed—perhaps, after all, pharmacy has not done so badly. To-day, when the depths of chemical knowledge are being plumbed for the purposes of destroying life, there is some satisfaction in the reflection that the resources of medicine and pharmacy are devoted to saving it; not only, indeed, to the curing of the sick and wounded, but to maintaining health of our troops and of the civil population. An adequate medicine service is a national asset; that it has been provided under circumstances of unparalleled difficulties is no small thing."

The same thoughts are thoroughly applicable in this country and our efforts should be continued in persuading the Government to take this view and grant adequate recognition to pharmacy and pharmacists. Without this there is lack of coördination in the medical service whereby injustice is done to business, the military organizations, and civilians. Certainly pharmacy is and has been an aid to many of the departments of the Government and could be made more serviceable if for every department in which pharmacy is concerned, one or more pharmacists would be provided; surely, many difficulties that confront the drug business, as well as the Government, would be avoided.

E. G. E.

SCIENTIFIC SECTION

BIOLOGICAL STANDARDIZATION OF THE HEART TONIC PREPARATIONS.*

BY H. C. COLSON, JR.

Up to the present time it has been generally recognized that the standardization of the Heart Tonic Preparations such as digitalis, strophanthus, squill and others of less importance, may best be accomplished by biological rather than by chemical methods of assay. The nature of the active principles in the various drugs with the possible exception of strophanthus, in which the strophanthin can comparatively easily be estimated chemically, is such that they cannot conveniently be isolated and estimated in a pure state. Further, since each of these drugs, as for instance digitalis, contains quite a number of active principles which are not always present in the drug in the same definite proportion to each other, it would be impossible to base the valuation of the drug on the estimation of only one active principle.

The value of the drug, *i. e.*, the estimation of its active principles, which may or may not act synergistically upon each other, can, however, be determined by biological assay.

The real problem which confronts investigators in this branch of science, resolves itself into determining the biological method of assay most suitable for the preparations in question, that is, the method which approaches in its accuracy, rapidity of execution and dependability under general laboratory conditions that of the best chemical analytical procedures.

Biological methods of estimation or standardization are in general inherently subject to certain variables which tend to affect the final results. This is true whether the object is to standardize a disinfectant by the Hygienic Laboratory Coefficient Method, or to assay digitalis preparations by the one-hour frog, 12-hour frog or the cat method.

In all cases, with the exception of the cat method, the factors of time, temperature at which the drug is allowed to act, relative concentration of test solution and rate of absorption (in the case of frog assays), or the type of organism employed (in the case of bacteriological standardizations), enter to modify, individually and collectively, the final result. The biological method which has the fewest number of variables and at the same time takes into account the action upon which its therapeutic usefulness depends, should be the one selected.

In my opinion, the cat method offers the best means for standardizing the heart tonic drugs of the digitalis series. Briefly stated, this method consists in

*Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

ascertaining the minimum lethal dose per kilo cat, the drug being slowly injected into the femoral vein until death of the animal with typical digitalis poisoning occurs, and expressing the minimum lethal dose (M. L. D.) as percentage strength of an arbitrary standard, which has been adopted as 100 mgs. of digitalis leaves per kilo body weight.

The reasons for this opinion are based on the experience of this laboratory in the physiological assay of heart tonic preparations by both frog and cat methods.

1. *The One-Hour Frog Method of the U. S. P. IX.* The one-hour frog method, as recommended by the U. S. P. IX, has, in my opinion, the following variables and constants upon which the final result depends, namely:

- (1) Concentration of Test Solution, whereby all or only part of the solution may be absorbed within the time limit of one hour.
- (2) Absorption Rate due to nature of Test Solution; for instance, digitalin is absorbed much more slowly than tincture of digitalis, etc.
- (3) Seasonal variation of Test Animal.
- (4) Degree of accuracy in weighing frogs and administering dose.

The factors in the assay which can be made constant if due care is taken are:

- (a) Length of Test Period (1 hour).
- (b) Temperature at which the drug is allowed to act (20° C.).
- (c) Species of Test Animal (*Rana Pipiens*).

Furthermore, as the final calculation of the strength of a sample is dependent upon a secondary assay of a so-called standard substance, ouabain, which assay is likewise affected by the same experimental conditions as set forth above, it is readily seen that in reality at least eight variable factors are liable to enter into a single standardization by the one-hour frog method.

The Factor of Concentration.—The concentration of the test solution recommended for injection, *i. e.*, that the total average dose does not exceed 0.015 mil for each gramme of body weight of frog, or an average total of 0.5 mil, is not always attainable, and many times where the sample is low in toxicity it is necessary to give over 1 mil, which is equivalent to 0.030 mil per Gm. frog. Other things being equal, it is obvious that the larger the quantity of liquid necessary to represent a certain dose, the longer the time required for total absorption. The volume of the dose may be made smaller by evaporating the samples to give the required concentration, but no matter how careful the process of evaporation may be, it is more than probable that some loss in activity will take place. This applies especially to the digitalis series of preparations.

Rate of Absorption.—Experience has shown that some substances are absorbed more slowly than others; among these are, as already mentioned, solutions of digitalin; further solutions of digitoxin and those containing acetic acid. Other investigators have recorded similar observations.¹ The rate at which the dose is absorbed after injection into the lymph sac frequently depends upon the health of the frog. The so-called red-legged disease is very prevalent among frogs and without doubt such diseased frogs give unreliable results. However, it is equally true that apparently healthy frogs often have a relatively large amount of unabsorbed solution in the lymph sac at the end of the test period of one hour. This applies especially to fluidextract of digitalis, digitalin and acetic squill.

While therefore frogs are entirely unsuitable for assaying digitalin by the one-hour method very concordant and satisfactory results are obtained by the cat method as shown in Table I. Therefore the cat method has proved with me to be a very useful and satisfactory method of assaying hypodermic and tablet triturate preparations of digitalin.

TABLE I.—BIOLOGIC ASSAY OF DIGITALIN.

(Merck's Digitalin.)

(Test Animal—Cat.)

| Date of assay. | Sex and wt. (kilos) of T. A. | Value of vol. injected | Lethal Dose for test animal (mils). | L. D. per kilo (mils). | L. D. expressed as Gms. digitalin per kilo. |
|----------------|------------------------------|------------------------|-------------------------------------|------------------------|---------------------------------------------|
| 9/19/16 | *2.49 | 1 mil = .001 | 14 | 5.63 | .005,63 |
| 11/3/16 | *2.47 | 1 mil = .001 | 14 | 5.67 | .005,67 |
| 3/15/17 | †2.78 | 1 mil = .001 | 16 | 5.75 | .005,75 |
| 3/22/17 | †3.40 | 1 mil = .001 | 19 | 5.88 | .005,88 |
| 3/26/17 | *3.22 | 1 mil = .001 | 19 | 5.90 | .005,90 |

* = Female. † = Male.

NOTE.—The average M. L. D. expressed in Gm. digitalin per kilo cat is equal to .005,77.

The absorption of preparations of squill containing acetic acid is especially slow and results obtained by the one-hour frog method are generally especially unsatisfactory.

The apparent difference in toxicity of two preparations or substances may possibly be due largely to their different rates of absorption by the frogs. The more rapid the absorption, the greater the apparent toxicity. The one-hour frog method does not properly take care of this source of error, as the test period of one hour is too short and constitutes, in my opinion, the chief objection or criticism of this method of assay. The fact that absorption rates of individual healthy frogs are different and also that some members of the digitalis series are absorbed much more rapidly than others, should be taken into account in a biologic assay. The 12-hour frog method overcomes this objection and in this respect is to be preferred to the method recommended by the U. S. P.

Changes in Reaction of Frogs at Different Seasons.—That a seasonal variation exists in the reaction of frogs to the digitalis series has been generally claimed, but so far as my observations are concerned, there is nothing definite to be concluded on this point. A possible lessening in the vitality of the frogs has been noted during the summer months which may give an unwarranted increase in toxicity of samples. No positive evidence of this has been noted, but undoubtedly one lot of frogs differs from a succeeding lot in its reactions to drugs even at the same season of the year. Even the same lot of frogs may react differently to the same sample of ouabain when tested at different times. For example: 0.000,000,7 Gm. per Gm. frog was the M. S. D. by the one-hour method for a sample of ouabain, and when assayed the following day on the same lot of frogs a M. S. D. of 0.000,000,9 Gm. per Gm. frog was obtained.

TABLE II.—OUABAIN.
Biologic Assays by "One-Hour Frog."

| Series No. | Date of assay. | Data on | | M. S. D. Gm. per Gm. frog. |
|------------|----------------|----------------------------------------------------------|-----------------------------------------------|----------------------------|
| | | Ouabain. | Frogs. | |
| 1 | 7 3 17 | Stock sol. A made Sept. 7, 1916 | Held 1 month in storage tank previous to test | .000,001,1 |
| | 7 3 17 | Stock sol. B made Aug. 29, 1917, from new sample ouabain | Held 1 month in storage tank previous to test | .000,000,7 |
| 2 | 7 3 17 | Stock A | Held 2 days in storage tank previous to test | .000,000,7 |
| | 7 3 17 | Stock B | Held 2 days in storage tank previous to test | .000,000,6 |

It is to be noticed that in both series of tests tabulated above, the new sample of ouabain was slightly more toxic than the other. These two series bring out not only the difference in reaction of two lots of frogs to the same sample of ouabain, but also the difference in toxicity between ouabain obtained from different sources of supply.

It will also be seen that both lots of frogs showed a slightly greater toxicity for the Stock B ouabain.

These two samples of ouabain were assayed by the cat method with the following results:

TABLE III.—OUABAIN.
Assayed by Cat Method.

| Series No. | Date of assay | Data on ouabain used | Sex and wt. of test animal, kilos. | Value of solution injected. | Dose of dil. | Equiv. dose of original. | Gm. ouabain per kilo cat. |
|------------|---------------|-------------------------------------------------------------|------------------------------------|-----------------------------|--------------|--------------------------|---------------------------|
| 1 | 7 31 17 | Stock sol. A made Sept. 7, 1916 | †2 10 | 1 mil = .000,01 Gm. | 29 | 15 22 | .000,132,2 |
| | | | †4 15 | 1 mil = .000,02 Gm. | 30 | 7 23 | .000,144,5 |
| | | | *2 85 | 1 mil = .000,01 Gm. | 36 | 12 63 | .000,126,3 |
| 2 | 7 31 17 | Stock sol. B made Aug. 29, 1917, from new sample of ouabain | *2 09 | 1 mil = .000,01 Gm. | 28 | 9 37 | .000,093,7 |
| | | | *2 56 | 1 mil = .000,01 Gm. | 20 | 7 82 | .000,078,2 |
| | | | †3 33 | 1 mil = .000,01 Gm. | 26 | 7 81 | .000,078,1 |

† = Male. * = Female.

The variation in toxicity of ouabain of different source therefore manifests itself also in the cat tests. For Stock A ouabain, the average M. L. D. is 0.000,129,3 Gm. per kilo and for Stock B it is 0.000,078,2 Gm. per kilo cat, hence the latter sample is decidedly more toxic than the other and in this respect the cat method corroborates the frog assay. The so-called "standard" of the U. S. P. one-hour frog assay method is therefore of doubtful value, a fact which has been verified by Rowe.²

TABLE IV.—ASSAYS MADE ON DIFFERENT DATES, SHOWING VARIATIONS IN TOXICITY OF OUBAIN AND DIGITALIS, AND EFFECT UPON PERCENT ACTIVITY AS DETERMINED BY U. S. P. IX.

| Sample. | Date examined. | One-Hour Frog Method. | | | | M. L. D. Cat Method. | | |
|-----------------|----------------|-----------------------|-------------------|------------------|-------------------------------|----------------------|-------|-------------------|
| | | Temp. of medication. | M. S. D. Ouabain. | M. S. D. Sample. | Percent activity of standard. | M. L. D. per kilo. | | Percent activity. |
| | | | | | | Mils. | Mgs. | |
| Tr. Digitalis | | | | | | | | |
| (1) | 11/6/16 | 20° C. | .000.000,65 | .006 | 130.0 | 1.56 | 156.0 | 64.2 |
| | 12/4/16 | 20° C. | .000.000,80 | .009 | 106.0 | 1.56 | 156.0 | 64.0 |
| | 1/29/17 | 20° C. | .000.000,70 | .009 | 90.0 | 1.495 | 150.0 | 66.7 |
| F. E. Digitalis | | | | | | | | |
| | 11/21/16 | 20° C. | .000.000,80 | .000,75 | 128.0 | 0.200 | 200.0 | 50.0 |
| | 12/4/16 | 20° C. | .000.000,80 | .000,88 | 109.6 | ... | ... | ... |
| | 1/29/17 | 20° C. | .000.000,60 | .000,72 | 103.0 | 0.205 | 205.0 | 48.7 |
| Tr. Digitalis | | | | | | | | |
| (2) | 1/5/17 | 20° C. | .000.000,7 | .0070 | 120.0 | 0.975 | 97.5 | 102.5 |
| | 1/6/17 | 20° C. | .000.000,6 | .0065 | 110.6 | 0.976 | 97.6 | |
| | 1/9/17 | 20° C. | .000.000,7 | .0065 | 129.2 | ... | ... | |
| | 1/9/17 | 20° C. | .000.000,7 | .0070 | 120.2 | ... | ... | |
| Tr. Digitalis | | | | | | | | |
| (3) | 4/30/17 | 20° C. | .000.000,85 | .0125 | 81.6 | 1.005 | 100.5 | 99.5 |
| | 5/11/17 | 20° C. | .000.001,1 | .0110 | 120.0 | ... | ... | ... |
| Tr. Digitalis | | | | | | | | |
| (4) | 5/1/17 | 20° C. | .000.000,6 | .008 | 90.0 | 1.284 | 128.4 | 77.8 |
| | 5/11/17 | 20° C. | .000.001,1 | .008 | 165.0 | ... | ... | ... |
| Tr. Digitalis | | | | | | | | |
| (5) | 8/15/17 | 20° C. | .000.000,7 | .0095 | 88.5 | 0.752 | 75.2 | 133.0 |
| | 8/22/17 | 20° C. | .000.001,0 | .0090 | 133.4 | 0.768 | 76.8 | 130.0 |

NOTES:

(a) Three cats were used for each cat assay, and the average taken for above table.

(b) One-hour frog method of U. S. P. IX used.

The data in Table IV shows that when tested by the one-hour frog method, the variation in the toxicity of ouabain is proportionally greater than that of digitalis preparations tested at the same time. In other words, it is due to this variableness of the ouabain or so-called standard that the samples show such large differences in activity when tested on different dates. Much more constant results are obtained by M. L. D. cat method. While the data are not complete in all cases, still there is sufficient to bring out this point.

Degree of Accuracy Obtainable in Weighing Frogs and Administering Dose.—

The U. S. P. recommends that the frogs for assay be weighed to 0.1 Gm. Whether it is possible to comply with this degree of accuracy is doubtful, owing to the large moisture content of the animals and the difficulty in wiping them completely dry. Frogs removed from the constant temperature bath, weighed, returned to the bath for one hour and then reweighed, invariably show a change in weight, generally a loss of approximately one gramme per frog, as shown by the following tables.

A lot of frogs which had been kept in running cold water for one month was weighed, then placed in a constant temperature bath for one and one-half hours,

three hours and twenty-four hours, and after the lapse of these periods was re-weighed. The results are given in Table V, which shows that frogs lose considerable weight during the keeping and that the loss is to some extent in proportion to the length of time the frogs are kept, as is evident from the results in this table. This loss applied both to frogs which had been kept for one month in a storage tank and to frogs which were examined two days after their arrival. The loss in this latter lot of frogs was even greater than with the former (see Table VI). The conclusion is that frogs cannot be first weighed and then held at a special temperature an hour or two before injecting doses based on the initial weight if accuracy is desired; and also that frogs should be weighed to the nearest Gm. rather than 0.1 Gm. as specified by the U. S. P. IX.

TABLE V.—SHOWING VARIATION IN WEIGHTS OF FROGS PREVIOUSLY KEPT IN STORAGE TANK FOR ONE MONTH.

| Frog No. | Original weight in Gm. | Weight after 1½ hrs. in 21° C. bath. | Weight after 3 hrs. in 21° C. bath. | Weight after 24 hrs. in 21° C. bath. | Change in weight at end of | | |
|-----------|------------------------|--------------------------------------|-------------------------------------|--------------------------------------|----------------------------|--------|---------|
| | | | | | 1½ hrs. | 3 hrs. | 24 hrs. |
| 1 | 20.3 | 21.0 | 20.6 | 17.9 | +0.7 | +0.3 | -2.4 |
| 2 | 16.1 | 15.9 | 15.9 | 15.8 | -0.2 | -0.2 | -0.3 |
| 3 | 15.1 | 15.3 | 15.4 | 15.3 | +0.2 | +0.3 | +0.2 |
| 4 | 15.2 | 14.8 | 14.8 | 14.1 | -0.4 | -0.4 | -1.1 |
| 5 | 19.5 | 19.4 | 19.8 | 18.0 | -0.1 | -0.1 | -1.5 |
| 6 | 20.3 | 21.0 | 20.7 | 19.1 | +0.7 | +0.4 | -1.2 |
| 7 | 30.4 | 29.2 | 28.2 | 25.2 | -1.2 | -2.2 | -5.2 |
| 8 | 21.1 | 20.2 | 20.3 | 20.2 | -0.9 | -0.8 | -0.9 |
| 9 | 20.1 | 29.2 | 29.1 | 24.8 | +0.1 | 0.0 | -4.3 |
| 10 | 21.1 | 21.4 | 21.7 | 20.0 | +0.3 | +0.6 | -1.1 |
| 11 | 20.8 | 20.8 | 20.5 | 20.0 | 0.0 | -0.3 | -0.8 |
| 12 | 18.6 | 18.4 | 18.3 | 17.2 | -0.2 | -0.3 | -1.4 |
| 13 | 25.8 | 25.1 | 25.0 | 24.3 | -0.7 | -0.8 | -1.5 |
| 14 | 34.0 | 33.3 | 33.2 | 33.0 | -0.7 | -0.8 | -1.0 |
| 15 | 27.5 | 28.6 | 28.8 | 28.1 | +1.1 | +1.3 | +0.6 |
| 16 | 26.7 | 26.2 | 26.3 | 25.9 | -0.5 | -0.4 | -0.8 |
| 17 | 18.8 | 18.0 | 17.5 | 17.5 | +0.1 | -1.3 | -1.3 |
| 18 | 17.6 | 17.5 | 17.7 | 16.2 | -0.1 | +0.1 | -1.4 |
| 19 | 21.3 | 21.7 | 21.9 | 20.5 | +0.4 | +0.6 | -0.8 |
| 20 | 22.7 | 22.8 | 23.5 | 21.0 | +0.1 | +0.8 | -1.7 |
| Averages. | | | | | -0.07 | -0.17 | -1.39 |

Granted that a frog is accurately weighed, which in my opinion would be the nearest Gm. or half Gm., and also that the exact dose is administered, there is still the probability that some of the drug may leak out during the test. This may not take place through the point of injection but the fact that the injected fluid distends the tissues, which are readily permeable to fluids, furnishes the basis of this criticism of the one-hour frog method.

The Factor of Length of the Test Period.—In regard to the time factor, it may be said that this can doubtless be made practically a constant if due care is exercised. A few minutes plus or minus one hour frequently have been shown to be highly important, a minus result, *i. e.*, frog heart still beating or in diastole at the end of one hour, being changed to plus result, *i. e.*, systolic standstill of frog heart,

TABLE VI.—SHOWING VARIATION IN WEIGHTS OF FROGS PREVIOUSLY KEPT IN STORAGE TANK
2 DAYS.

| Frog No. | Original weight in Gm. | Weight after 1½ hrs. in 21° C. bath. | Weight after 3 hrs. in 21° C. bath. | Weight after 24 hrs. in 21° C. bath. | Change in weight at end of | | |
|----------|------------------------|--------------------------------------|-------------------------------------|--------------------------------------|----------------------------|--------|---------|
| | | | | | 1½ hrs. | 3 hrs. | 24 hrs. |
| 1 | 34.5 | 33.1 | 32.8 | 32.0 | —1.4 | —1.7 | —2.5 |
| 2 | 19.3 | 18.2 | 18.6 | 18.3 | —1.1 | —0.7 | —1.0 |
| 3 | 23.8 | 23.5 | 23.5 | 23.0 | —0.3 | —0.3 | —0.8 |
| 4 | 20.8 | 19.7 | 19.7 | 19.1 | —1.1 | —1.1 | —1.7 |
| 5 | 40.9 | 40.3 | 40.0 | 36.1 | —0.6 | —0.9 | —4.8 |
| 6 | 36.9 | 36.2 | 36.2 | 30.8 | —0.7 | —0.7 | —6.1 |
| 7 | 45.7 | 44.7 | 45.1 | 41.3 | —1.0 | —0.6 | —4.4 |
| 8 | 20.8 | 29.5 | 28.4 | 27.2 | —0.3 | —1.4 | —2.6 |
| 9 | 28.8 | 28.1 | 28.1 | 26.8 | —0.7 | —0.7 | —2.0 |
| 10 | 30.6 | 30.4 | 30.5 | 28.8 | —0.2 | —0.1 | —1.8 |
| 11 | 28.8 | 26.9 | 26.9 | 25.2 | —1.9 | —1.9 | —3.6 |
| 12 | 25.7 | 24.2 | 22.9 | 22.9 | —1.5 | —2.8 | —2.8 |
| 13 | 32.6 | 32.6 | 32.5 | 31.0 | 0.0 | —0.1 | —1.6 |
| 14 | 18.7 | 18.2 | 18.4 | 17.7 | —0.5 | —0.3 | —1.0 |
| 15 | 38.6 | 36.3 | 34.7 | 34.9 | —2.3 | —3.9 | —3.7 |
| 16 | 27.7 | 26.0 | 25.2 | 25.5 | —1.7 | —2.5 | —2.2 |
| 17 | 32.2 | 30.1 | 29.8 | 28.7 | —2.1 | —2.4 | —3.5 |
| 18 | 15.2 | 15.0 | 14.7 | 14.6 | —0.2 | —0.5 | —0.6 |
| 19 | 37.8 | 36.6 | 36.8 | 35.3 | —1.2 | —1.0 | —2.5 |
| 20 | 32.7 | 32.5 | 32.5 | 28.3 | —0.2 | —0.2 | —4.4 |
| 21 | 32.3 | 31.4 | 32.3 | 29.5 | —0.9 | 0.0 | —2.8 |
| Average, | | | | | —0.995 | —1.14 | —2.69 |

a few minutes after the hour. It has been noted many times in the one-hour frog assay that a positive at the end of exactly one hour is changed in two minutes thereafter to a negative result. In the case of digitalis the administration of sublethal doses may have a paralytic action on the heart from which the frog may and does recover, hence this also accounts for some of the discrepancies in this method of assay.

The Importance of Temperature at Which Test Is Made.—The temperature at which the frogs are maintained during the experiment has been repeatedly shown to have an important bearing on the result.^{1,3}

In most laboratories it is feasible to maintain the 20° C. bath recommended by the U. S. P. and the factor of the temperature at which the medicated frog is kept for one hour cannot be overestimated because dependent upon it in large measure is the rate of absorption and *vice versa*.

The Species of the Test Animal.—That the species of frogs used may affect the assay is generally admitted, but by using only one species of frogs, preferably *Rana Pipiens* as recommended by the U. S. P., this factor may also be rendered a constant.

Before taking into consideration the cat method of biochemic assay, other weak points of the frog assay may be mentioned.

My experience has shown that the average frog assay requires oft-repeated trial assays before the M. S. D. can be found. After reaching the approximate M. S. D. it is necessary to obtain the minimum dose which gives two positives

out of three, or better three out of five. What renders the preliminary assays so uncertain at times in their value for subsequent tests, is the fact that frogs very often show systolic standstill "out of order." For example, a preliminary series of three frogs at doses .006, .009 and .012 mil per Gm. body weight, respectively, gives results, —, +, +. Instead of a M. S. D. between .006 and .009 as indicated by the first series, subsequent trials show the M. S. D. around .012 or even above. In other words, frog with dose .009 and heart in systole was "out of order."

Another example frequently found in practice is a preliminary assay, where doses of .000,000,5, .000,000,7, .000,000,9 and .000,001,1 Gm. ouabain per Gm. body weight of frog give —, —, + and + results, respectively. This trial assay indicates a M. S. D. of between .000,000,7 and .000,000,9, but the completed assay indicates a M. S. D. of .000,000,7, or even less. The result is that the preliminary tests are often entirely misleading, a circumstance which often calls for a greatly increased number of trial assays.

The above considerations lead to the question of relative costs of the two methods. It has been my experience that a frog assay costs on the average \$1.15 for animals compared with \$0.70 for a cat assay. No difficulty has been experienced in obtaining test animals, either cats or frogs, as has been reported by some writers.

Finally, the following very important fact must be mentioned, namely, that the end point in one-hour frog-heart assay is many times far from satisfactory, and its interpretation one way or the other depends in large measure on the operator.

It has been my observation that the end point for the one-hour frog is frequently very indefinite as the heart does not stop in well-defined systole, in other words, there is a varying degree of paralysis of the heart which is interpreted according to the operators' judgment.

II. *Biologic Standardization—By the Cat Method.*—The cat method employed in this laboratory is a modification of the Hatcher procedure.⁴ The suitably diluted sample is slowly injected into the femoral vein until the death of the animal with typical digitalis poisoning occurs. A solution of ouabain is not used, as nothing is gained thereby, either in time or in the accuracy of the test. As to my preference of the cat method over the one-hour method, the following may be pointed out:

The M. L. D. method for the physiologic standardization of the digitalis series using the cat as the test animal has, in the writer's opinion, many advantages for the following reasons:

- (1) A shorter time is required for making an average assay, *viz.*, two hours (cat) as compared to three hours (frog).
- (2) Cost of animals cost per assay less, \$0.70 *vs.* \$1.15.
- (3) Assay capable of greater absolute as well as relative accuracy, since
- (a) Cat assays are not affected by seasonal variation in test animal which is clearly shown in Tables I and X.
- (b) Age or sex of T. A.: immaterial, as shown in the same tables and also in Table VII.
- (c) Definite end point, *i. e.*, death.
- (d) Quantity of drug injected is accurately measured.
- (e) Calculation of activity or strength is not dependent upon a secondary assay (ouabain) which would tend to lower the degree of accuracy by introducing more variables.

(4) According to the U. S. P. the application of the digitalis series in therapeutics is proportional to its toxicity.

Time Necessary to Complete an Assay by Cat Method.—Compared with the one-hour frog, a much shorter time is needed to make an average assay. The assay can be completed in two hours, and usually the first two cats will be sufficient to obtain concordant results, and it is seldom necessary to use three animals.

Relative Cost of Two Methods.—The average cost of the two methods of assay has already been stated and is self-explanatory. This result is not, however, in agreement with the findings of some laboratories, as, for example, the Hygienic Laboratory.⁵

REASONS WHY CAT ASSAY IS MORE ACCURATE AND DEPENDABLE.

(a) In regard to the reaction of the cat to the active principles of the digitalis series, it has been my observation that it does not change from season to season, a fact borne out by data in Tables I and X. In this respect it seems to be an entirely satisfactory test animal and is very constant in its susceptibilities to the action of the digitalis series. The cats which have been used for standardization tests in this laboratory have been typical of the common stray cats of any large city which would ordinarily in time be destroyed by the duly authorized city officials. It has been my experience that such cats are seldom diseased.

(b) Age and sex of the cat are immaterial according to my experience. Results obtained by using female cats of 1.5 kg. body weight will check those of male cats weighing 3.0 kg.

(c) Cats can be weighed much more accurately than frogs and, furthermore, they do not change weight, at least during the period of the assay, as is the case with frogs. Roughly, the average error in weighing cats is ± 0.5 percent and for frogs it amounts to ± 2.0 percent. No leakage of the test solution during injection into the femoral vein of the cat is possible and since the total amount of drug injected is accurately measured by a burette, the calculation of the physiologic strength of the sample can approach in accuracy that of a quantitative chemical analysis.

Applicability of Cat Method to Biologic Standardization of Heart Tonics.—The cat assay method, while inherently subject to a certain limit of accuracy due to the fact that all physiologic standardizations are reactions between active chemical principles and healthy living tissues, has practically no variables to deal with, such as temperature, time or rate of absorption, etc., and hence in my opinion the percentage error is much less than in the assay recommended by the U. S. P. IX. The cat method of assay, as in all applications of biologic reactions to the purposes of quantitative standardization, requires that at least two out of three tests on the same sample shall be concordant. This is necessary because of the fact that individuals of the same species, whether man or the lower animals, show differences in their reaction to drugs which may be both qualitative and quantitative. The differences are generally quantitative and hence in all biologic assays one must obtain a majority number of concordant results in each series of tests. In this way the peculiar or exceptional reactions of a drug upon the test animal, *i. e.*, its idiosyncrasy, can be taken care of.

The argument is often made by those unfamiliar with physiologic testing, that a biologic test on cats, etc., does not furnish a reliable guide to the action or activity of a drug so tested, when it is applied to man. It is probably true that what constitutes a therapeutic or toxic dose of digitalis for a cat would not proportionally be the same for a man, but it is true that in both instances the typical actions of a potent digitalis preparation would be present.

The real purpose of biologic testing is to measure the strength or activity of a preparation, so that it may be adjusted to a uniform or standard strength,

i. e., standardized. The method of assay which accomplishes this object with the greatest degree of accuracy is the logical one to employ. The value of such a standardized product to the practicing physician is obvious.

The U. S. P. states that preparations of digitalis after being assayed by the "One-Hour Frog" (a toxic method) should be corrected so as to conform to the standard adopted. In my experience, the cat method, which also belongs to the toxic type of assay, has been more satisfactory in all respects for purposes of estimating or standardizing. Because in the cat method fewer variables enter to lower the limit of accuracy, the ratio between the toxicity of samples and their therapeutic efficiency must be more constant when determined by this method.

In this connection the following tables giving the results of biologic assays upon a series of digitalis samples will be of interest.

TABLE VII.—A COMPARISON OF BIOCHEMIC ASSAYS ON SAMPLES OF TINCTURE OF DIGITALIS BY THE CAT AND "ONE-HOUR FROG" METHODS.

| Sample No | One-Hour Frog. | | | M. L. D. for Cat. | | | |
|-----------|------------------------------|----------------------------|----------------------------------|-------------------------|------------------------------------|-----------------------------------------|------------------------------------------|
| | M. S. D. of ouabain Gm. Gm. | M. S. D. of sample mls Gm. | Percent strength by U. S. P. IX. | Wt. (kilos) and sex. | Mils per kilo. | Percent strength (100 mgs. lvs = 100%). | Ratio of percentage strengths Cat: Frog. |
| 1 | .000,000,8 | .007 | 137.0 | 3.11* 2.57* | 1.156 } 1.090 } 1.123 | 89.0 | 1 : 1.540 |
| 2 | .000,001,0 | .020 | 60.0 | 3.41† 2.91* | 1.114 } 1.139 } 1.124 | 89.0 | 1 : 0.67 |
| 3 | .000,000,9 | .011 | 98.2 | 2.20* 2.88* | 1.18 } 1.18 } 1.18 | 84.8 | 1 : 1.158 |
| 4 | .000,000,8 | .009 | 106.5 | 3.52† 3.40† | 1.193 } 1.176 } 1.184 | 84.5 | 1 : 1.260 |
| 5 | .000,001,2 | .010 | 144.0 | 3.66† 2.17* | 1.147 } 1.290 } 1.217 | 82.2 | 1 : 1.753 |
| 6 | .000,001,0 | .010 | 120.0 | 2.86† 3.21† | 1.05 } 1.09 } 1.07 | 93.5 | 1 : 1.284 |
| 7 | .000,000,8 | .0065 | 147.5 | 2.88† 3.11† | 0.903 } 0.965 } 0.934 | 107.1 | 1 : 1.376 |
| 8 | .000,000,7 } .000,000,6 } | .0080 } .0065 } | 105. } 110.8 } | 1.70* 2.03* | 0.882 } 0.837 } 0.859 | 116.4 | 1 : 0.93 |
| 9 | .000,000,7 } .000,000,6 } | .0070 } .0065 } | 120. } 110.6 } | 2.77* 3.89† | 0.975 } 0.976 } 0.975 | 102.5 | 1 : 0.85 |
| 10 | .000,000,7 } .000,000,9 } | .0065 } .007 } | 129.2 } 154.3 } | 2.94* 2.98* | 0.975 } 0.940 } 0.912 | 109.6 | 1 : 1.495 |
| 11 | .000,000,9 | .006 | 180.0 | 3.85† 3.17* | 0.727 } 0.726 } 0.727 | 137.8 | 1 : 1.305 |
| 12 | .000,000,9 | .010 | 108.0 | 4.29† 3.35† 2.41* | 1.024 } 1.372 } 1.036 } 1.03 | 97.1 | 1 : 1.112 |

NOTES:

The average ouabain M. S. D. obtained from above table is .000,000,83.

The average ratio of percentage strength equals Cat : Frog = 1 : 1.228.

† = Male. * = Female.

TABLE VIII.—REARRANGEMENT OF TABLE VII IN ORDER OF PERCENTAGE STRENGTHS AS DETERMINED BY EACH ASSAY METHOD.

| Sample No. | Percentage strength by frog assay. | Sample No. | Percentage strength by cat assay. |
|------------|------------------------------------|------------|-----------------------------------|
| 11 * | 180.0 | 11 * | 137.8 |
| 10 | 154.3 | 8 | 116.4 |
| 7 | 147.5 | 10 | 109.6 |
| 5 | 144.0 | 7 | 107.1 |
| 1 | 137.0 | 9 | 102.5 |
| 6 | 120.0 | 12 | 97.1 |
| 9 | 119.7 | 6 | 93.5 |
| 12 | 108.0 | 1 | 89.0 |
| 8 | 107.9 | 2 | 89.0 |
| 4 | 106.5 | 3 | 84.8 |
| 3 | 98.2 | 4 | 84.5 |
| 2 | 60.0 | 5 | 82.2 |

*It will be seen from the above table that in only one instance, namely, sample of digitalis No. 11, are the samples arranged in the same order of strength by both methods of assay.

Table VII shows that excellent check results can be obtained on the same sample regardless of the weight and sex of the cat. This fact is also brought out by data in Table I.

TABLE IX.—OUABAIN.

Biologic Assays.

| Date. | One-Hour Frog M. S. D. | Date. | One-Hour Frog M. S. D. |
|----------|---------------------------|---------|---------------------------|
| 9/26/16 | .000,000,5 | 3/27/17 | .000,000,8 |
| 10/19/16 | .000,000,6 | 3/30/17 | .000,001,1 |
| 10/24/16 | .000,000,6 | 3/31/17 | .000,000,8 |
| 11/1/16 | .000,000,5 | 3/17/17 | .000,000,7 |
| 11/2/16 | .000,000,5 | 3/22/17 | .000,000,8 |
| 11/6/16 | .000,000,65 | 4/3/17 | .000,001,1 |
| 11/21/16 | .000,000,8 | 4/7/17 | .000,000,8 |
| 11/23/16 | .000,000,55 | 4/10/17 | .000,000,8 |
| 12/1/16 | .000,000,8 | 4/14/17 | .000,000,85 |
| 12/18/16 | .000,000,85 | 4/23/17 | .000,000,6 |
| 1/5/17 | .000,000,7 | 4/24/17 | .000,000,55 |
| 1/6/17 | .000,000,6 | 4/26/17 | .000,000,8 |
| 1/9/17 | .000,000,7 | 5/4/17 | .000,001,1 |
| 1/10/17 | .000,000,7 | 5/10/17 | .000,001,0 |
| 1/15/17 | .000,001,2 | 5/12/17 | .000,001,2 |
| 1/19/17 | .000,000,6 | 5/17/17 | .000,001,2 |
| 1/22/17 | .000,000,55 | 5/17/17 | .000,001,3 |
| 1/23/17 | .000,000,7 | 5/18/17 | .000,000,6 |
| 1/25/17 | .000,000,65 | 5/21/17 | .000,001,0 |
| 1/29/17 | .000,000,6 | 5/22/17 | .000,001,1 |
| 2/12/17 | .000,000,8 | 5/24/17 | .000,000,9 |
| 2/14/17 | .000,000,85 | 5/25/17 | .000,000,9 |
| 2/21/17 | .000,000,7 | 5/28/17 | .000,000,9 |
| 3/13/17 | .000,001,1 | 6/4/17 | .000,000,8 |
| 3/15/17 | .000,001,1 | 6/7/17 | .000,000,9 |
| 3/19/17 | .000,000,8 | 6/12/17 | .000,000,7 |
| 3/19/17 | .000,000,7 | 6/13/17 | .000,001,0 |
| 3/26/17 | .000,001,1 | 6/21/17 | .000,001,0 |

The preceding table, IX, gives the results of assay of ouabain by the one-hour frog method extending over the last nine months. The average of the 56 assays is .000,000,82 Gm. ouabain per Gm. body weight of frogs as against the .000,000,5 Gm. standard given by the U. S. P.

The lowest M. S. D. (minimum systolic dose) was .000,000,5 and the highest .000,001,3 Gm. ouabain per Gm. body weight of frog, thus showing a variation of 160 percent. The average of all results over the nine-month period using the same stock sample of ouabain, but many different lots of frogs, is .000,000,82 Gm. ouabain per Gm. body weight. This is much larger than the standard used in the "one-hour method" specified by the Pharmacopoeia, but agrees very closely with that obtained by Rowe,² namely, .000,000,86 Gm. per Gm.

A maximum variation in toxicity of ouabain of only 30 per cent is obtained when cats are used as the test animal as may be seen from Table X.

TABLE X.—BIOLOGIC ASSAY OF OUABAIN.
Test Animal—Cat.

| Date of assay. | Sex and wt. (kilos) of T. A. | Value of sol. injected. | Lethal Dose for Test Animal (mils). | L. D. per kilo (mils). | L. D. expressed as Gm. ouabain per kilo. |
|----------------|------------------------------|-------------------------|-------------------------------------|------------------------|------------------------------------------|
| 11 28/16 | † 96 | 1 mil = .000,01 | 34 5 | 11 66 | .000,116,6 |
| 11 28, 16 | † 2.52 | 1 mil = .000,01 | 33 0 | 13 10 | .000,131,0 |
| 12 13 16 | * 2 45 | 1 mil = .000,01 | 35 0 | 14 29 | .000,142,9 |
| 12 14 16 | * 1 80 | 1 mil = .000,01 | 21 0 | 11 66 | .000,116,6 |
| 12 21 16 | † 3 10 | 1 mil = .000,01 | 40 0 | 12 90 | .000,129,0 |
| 4 4 17 | † 2 67 | 1 mil = .000,02 | 19 0 | 7 12 | .000,142,4 |
| 4 4 17 | * 2 34 | 1 mil = .000,02 | 15 0 | 6 72 | .000,134,4 |
| 4 6 17 | † 3 23 | 1 mil = .000,02 | 18 0 | 5 57 | .000,111,4 |
| 8 1 17 | † 2 19 | 1 mil = .000,01 | 29 0 | 13 22 | .000,132,2 |
| 8 1 17 | † 4 15 | 1 mil = .000,02 | 30 0 | 7 23 | .000,144,5 |
| 8 8 17 | * 2 85 | 1 mil = .000,01 | 36 0 | 12 63 | .000,126,3 |

† = Male. * = Female.

NOTE: Ouabain solution made up September 7, 1916.

1 mil = .001 Gm. Ouabain.

The above table shows that the minimum lethal dose varies from .000,111,4 Gm. to .000,144,5 Gm. per kilo cat, or, in other words, a variation of 29 percent as compared with 160 percent obtained by assaying ouabain with the frog as the test animal. It may readily be seen from a comparison of Tables IX and X that the cat method eliminates the factors of time, temperature at which drug is administered, age and sex of the animal.

The frog assays, on the other hand, are vitally affected by the factors of time and temperature, which in turn have an important relation to the absorption rate of the test solution.

The conclusion, offered by Edmunds and Hale, that in most cases the toxic action is not on the heart but on the respiratory centers, hence, "methods which employ as a standard the minimum lethal dose obtained from the higher animals are not applicable to the physiological assay of the digitalis series," is now corroborated by my experience. In practically every assay by the cat method which I have made the toxic action is not upon the respiratory centers, but upon the heart. This is shown by the fact that after the heart has stopped with typical digitalis poisoning the respiration continues for a number of minutes.

It is not the purpose of this paper to discuss the twelve-hour frog method at any length, chiefly because the experience of the writer with this method does not permit of any authoritative conclusions regarding it. Logically a larger dose should be required to cause systolic stoppage of the heart of the frog in one hour than is necessary to cause death in twelve hours. Of the heart tonic series, only strophanthus and squill comply with this. In the case of digitalis and convallaria the dose is less by the one-hour than by the twelve-hour method. Of the two frog assay methods, the twelve-hour is the writer's preference, since it takes into account the difference in the rate of absorption, and allows time for the reaction to be completed, and finally the end point (death) is absolutely unmistakable.

According to the experience of this laboratory with the twelve-hour method, more constant results are obtained than with the one-hour frog. This is especially noted in the tests on ouabain where the M. L. D. is always close to .000,000,45 Gm. per Gm. body weight, a fact which has already been verified by other investigators.²

Conclusions.—Conclusions relative to the two methods of biologic assay, which have been discussed in this paper, are for emphasis and conciseness tabulated as follows:

SUMMARIZING COMPARISON OF FACTORS IN BIOLOGIC ASSAYS BY THE ONE-HOUR FROG AND CAT METHODS OF ASSAYING THE HEART TONICS.

| Variable or Constant } affecting the re- sult of assay. | Effect, if any, upon the | |
|------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------|
| | One-hour frog assay. | M. L. D. cat assay. |
| Concentration of Variable (1) The test solution | Has important effect | Not especially important and negligible |
| (2) Absorption rate | Has important effect | Not important and neg- ligible |
| (3) Seasonal variation | May or may not be im- portant | Not important and neg- ligible |
| (4) Accuracy of ad- ministering dose | Low degree of accuracy, hence important effect | Accuracy high, therefore negligible factor |
| (5) Sex and weight of test animal | Does not affect assay | Does not affect assay |
| (6) So-called "stand- ard" ouabain | Ouabain from different sources variable; im- portant effect | No secondary "standard" used |
| Constants (1) Length of test period | Effect vital to result | Time factor does not enter |
| (2) Temperature at which drug acts | Effect is very important | Temperature factor does not enter |
| (3) Species of test ani- mal | Has been shown to be im- portant by other workers | Species is not a factor |

The above table summarizes the basis for the author's conclusion arrived at after extensive use of both assay methods, namely, that the cat method is capable of greater absolute as well as relative accuracy in biologic assays of the digitalis

series. It has also been pointed out in this paper that the considerations of relative cost, definiteness of the end point and time necessary for making an assay are all in favor of the M. L. D. cat method.

BIBLIOGRAPHY.

- (1) Baker, W. F., *JOUR. A. PH. A.*, Vol. IV., p. 443.
- (2) Rowe, C. W., *Ibid.*, Vol. V., p. 1183.
- (3) Roth, G. B., *Hyg. Lab. Bull.* 102, 1916.
- (4) Hatcher and Brody, *JOUR. A. PH. A.*, Aug. 1910, p. 362.
- (5) Hale, W., *Hyg. Lab. Bull.*, 74, 1911, p. 15.

PHIOLOGICAL LABORATORIES OF SHARP AND DOHME,
BALTIMORE, MD., August 1917.

THE CHEMICAL INVESTIGATION OF THE RESINS FROM DATURA METELLOIDES.*

BY CHARLES H. ROGERS.

Comparative amounts of alkaloids, glucosides, neutral principles and other medicinally active plant constituents have to a large degree been the bases upon which the value of vegetable drugs or drug preparations have been established. Tschirch and others have pointed out that vegetable drugs are far from simples as indicated by Galen, but rather that they are exceedingly complex. Pharmacological investigation has shown that the action of isolated principles does not always correspond with the action of the drug itself. Therefore, the pharmaceutical chemist and pharmacologist must pay more attention to the complex ingredients of drugs, or, as they are usually called, "extractives." The term "extractives" used in this connection refers to those supposedly inert materials that are soluble in the menstruum used to dissolve the more important constituents of the drug. Before it is possible to determine the part that these extractives play in the production of the total or composite action of drugs it is necessary to have a clearer chemical and pharmacological understanding of them *per se*. Not only is it of importance to understand their chemistry and pharmacology but it is also necessary that their physical constants in respect to temperature, their susceptibility to enzymic action, etc., must be studied.

It has been shown¹ that preparations made from digitalis which has been dried at a uniformly high temperature (70-90° C.) has an absorption value from 25 to 30 percent greater than preparations made from the commercially prepared article. Knowing that the active constituents of this drug are not vitally affected by ordinary temperatures, it is reasonable to conclude that the extractives have in some way been injured by careless manipulation, and, furthermore, that their alteration may have a decided deleterious effect on the rate of absorption of preparations made from the drug. These same conclusions may have a very important bearing on other vegetable drugs. With these fundamental facts in view, the chemical investigation of the resins (extractives) of *Datura metelloides* was undertaken.

* Read before meeting of Northwestern Branch A. Ph. A., December 5, 1917.

¹ E. L. Newcomb, *St. Paul Medical Journal*, August 1914.

Five hundred grammes of the No. 60 powdered leaves from *Datura metelloides*, 1913 crop, grown in the Medicinal Plant Garden of the University of Minnesota, were moistened with fifty percent alcohol and allowed to macerate for twelve hours. After having packed the moistened drug in a cylindrical percolator, menstruum was added until the liquid began to drop from the lower orifice. Percolation was then discontinued and the whole allowed to macerate for twenty-four hours. The drug was then exhausted of alkaloids as shown by Mayer's reagent. The percolate measured 3380 mls. Fifty percent alcohol was used in the extraction in order that the resins obtained for investigation might be those which would be present in an analogous tincture to that of the U. S. P. IX, *Tinctura Stramonii*.

To the acid tincture thus obtained freshly slaked lime was added until the solution was alkaline to litmus, filtered to remove excess of calcium hydroxide and also the precipitated gums, chlorophyll, etc., and acidulated with dilute sulphuric acid. Three hundred mls of this liquid at a time were placed in a still and the alcohol removed. This operation was conducted on a water bath and at a reduced pressure varying from 350 to 600 millimeters' vacuum. The purpose of reducing the temperature during the distillation of the alcohol was primarily in order that another line of investigation on the alkaloids of *Datura metelloides* might be carried on. This reduction of heat, however, would tend to the least alteration of the constants during extraction of the resin from the crude drug.

The deposited resins were collected, purified and dried in an electric oven for two days at a temperature of 50° C. The total resins from 500 Gm. of drug weighed 13.265 Gm., neutral to litmus, specific gravity, 1.1868 and in color, feel and odor resembled powdered aloes. The percent of soluble resins in the various solvents was then determined and is listed below:

| Ether. | Alcohol. | Chloroform. | Ligroin. |
|--------|-----------------|-------------|----------|
| 35% | 91% | 82.5% | about 1% |
| Water. | Methyl Alcohol. | | Acetone. |
| 5.32% | 86.14% | | 52.64% |

The method employed by A. Tschirch for the proximate analysis of resinous substances was used to classify these particular resins. From previous analyses it has been found that resins are composed of a mixture of compounds and may be classified only by the particular kind of resin which predominates. Tschirch classifies them as ester-resins, acid-resins, resin-alcohols and resenes. The method employed dissolved the resin in ether, but due to only 35 percent of the resins under investigation being soluble in ether, they were dissolved in chloroform. This chloroformic solution was agitated successively with (1) a 1 percent solution of ammonium carbonate, (2) a 1 percent solution of monohydrated sodium carbonate, and (3) solutions of potassium hydroxide of one-tenth and one percent strength, respectively. These reagents dissolved the acid-resins, which were then precipitated from the alkaline liquids with dilute hydrochloric acid. Analysis showed the chloroform-soluble resins to be 33.33 percent acid-resins. These acid-resins or resinolic acids are composed of the characteristic free acids of the original resin and are usually substances of very complex constitution and possess a high molecular weight.

The residue contained the resin-esters, alcohol-resins and resenes. These were separated by saponification with alcoholic potash when the acid radicles of the esters formed soluble potassium salts. It was determined that 54.54 percent of the sample was composed of resin-esters. These esters, as a rule, yield aromatic acids upon saponification and hence are sometimes classed as aromatic balsams.

The resenes and alcohol-resins were then extracted by agitation with ether. This mixture was then boiled for two hours with acetyl chloride under a properly fitted-up reflux condenser, during which process the alcohol-resins were acetylated while the resenes were not affected. The latter were carefully weighed and found to constitute 9.66 percent of the total resin. The results, showing the composition of the chloroform-soluble portion of the original resin, are given below:

| | |
|---------------------|--------|
| Acid-resins..... | 33.33% |
| Ester-resins..... | 54.54% |
| Resenes..... | 9.66% |
| Alcohol-resins..... | 1.84% |
| | <hr/> |
| | 99.37% |

Tschirch distinguished two kinds of resin-alcohols, *viz.*, resinols and resinotannols. The members of the first group are colorless compounds giving no tannin reaction with iron salts, while those of the second group are colored and give a tannin reaction. The resin-alcohols investigated were light amber in color and gave no tannin reaction with a solution of ferric chloride.

Previous investigations have shown resenes to be oxygenated compounds, not acted upon by alkalies and possessing no characteristic chemical properties. They do not appear to be alcohols, esters, acids, ketones or aldehydes.

Combustions were made on two individual samples of the resins with the following results:

| Sample. | Carbon. | Hydrogen. | Oxygen. |
|-----------------------------------|---------|-----------|---------|
| No. 1..... | 69.4% | 9.35% | 21.25% |
| No. 2..... | 68.5% | 9.49% | 22.01% |
| Average..... | 68.95% | 9.42% | 21.63% |
| Empirical formula: $C_6H_{10}O$. | | | |

The analytical characters of the resin from the leaves of *Datura metelloides* are recorded below, also those for its alcohol-soluble, alcohol-insoluble and ether-insoluble portions:

CONSTANTS FOR DATURA METELLOIDES RESIN.

| Resin | Saponification number. | Iodine value. | Acid number. | Ester number. | Ash. | Melting point. |
|------------------------------|------------------------|---------------|--------------|---------------|------|----------------|
| Original resin..... | 221.3 | 85.15 | 61.8 | 159.5 | 0.48 | 90° C. |
| Alcohol-soluble resin..... | 168.4 | 99.86 | 47.04 | 121.36 | 0.23 | 110.5° C. |
| Alcohol-insoluble resin..... | 286.2 | 99.53 | 39.5 | 246.7 | 0.65 | above 217° C. |
| Ether-insoluble resin..... | 315.9 | 97.88 | 141.06 | 174.84 | 0.14 | 149° C. |

The saponification number (number of milligrammes of potassium hydroxide absorbed by one gramme of resin) was determined by boiling a definite weight of the resin with $\frac{N}{2}$ alcoholic potassium hydroxide V. S. for two hours under a reflux and titrating the excess of alkali with $\frac{N}{10}$ hydrochloric acid V. S.

The iodine value (number of grammes of iodine absorbed by 100 Gm. of resin) was estimated by the Hanus method. This method depends upon the fact that

unsaturated fatty acids, as well as their esters, absorb halogens to form mainly addition products. This constant, then, may indicate to what group of unsaturated acids the resin-acids belong. Compared with iodine values of other resins, it checks with that of Elemi resin² of the *Bursera* species, they being 85.15 and 85.1, respectively.

The acid number (expressed in terms of milligrammes of potassium hydroxide required to neutralize one gramme of resin) was obtained by boiling a definite weight of resin for five minutes under a reflux with 90 percent alcohol and titrating the liquid when cold with $\frac{N}{10}$ alcoholic potash V. S., phenolphthalein used as indicator. This constant expresses the amount of free acids present.

The ester number was obtained by subtracting the acid number for the resin from the saponification number and expresses the number of milligrammes of potassium hydroxide that would be required to combine with only the esters present in the resin.

The foregoing methods with their results afford indications of the nature of resinous substances in question, but their use in the positive identification of the various individual commercial resins is a matter of considerable difficulty even when only one resin is present, and in case of an admixture is often impossible. These constants vary and may even be entirely destroyed by aging, heating, etc. J. Lewkowitsch³ has shown that the constants for various resins are absolutely destroyed by heating to 300° C. The saponification numbers, iodine values and acid numbers for the resins under examination checked after being heated to a temperature not exceeding 110° C. for two days. However, the constants for resins, including those obtained from *Datura metelloides*, may be recorded, but it is evident that any definite conclusions as to the value or purity of the resins should be drawn with the greatest care.

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A WOOL FAT (LANOLIN) SUBSTITUTE AND THE PREPARATION OF CETYLIC ALCOHOL.*

BY SOL. AXELRAD.

The question of substitutes for various materials has been one of prime importance during these war times, especially those substances and chemicals used in medicine and pharmacy. A year and a half ago the supply of wool fat was very limited and the price asked was four times more than that under normal conditions. A substitute called "Eucerin" imported from Germany was also scarce and the agency for this product had only four ounces left. It was claimed that "Eucerin" was made from the washings obtained in the manufacture of wool fat. The uses of lanolin are many, especially in pharmacy; as a vehicle for ointments, in the

² Schmidt and Urban, *J. Soc. Chem. Ind.*, 8, 308, 1889.

³ *Analyst*, 26, 38, 1901.

* Contributed by the author to the *JOURNAL A. PH. A.*, October 18, 1917.

preparation of bougies, suppositories, cold creams and plasters of various kinds, etc.

This investigation on a wool fat substitute was undertaken with the idea of making a fatty composition, which would have all of the desirable properties of lanolin, such as body, tenacity, power of absorbing water readily, taking up solutions of various chemicals used in pharmacy, dry powders, etc., etc.

Liebreich claimed that the absorbing power of wool fat was due to the cholesterin ethers it contained. Lifschuetz¹ isolated the cholesterin ethers of Liebreich and proved that they had very little power of absorbing water. He concluded from his experiments that the absorbing power of wool fat was due to the fatty alcohols of iso- and oxycholesterols. He separated from the alkaline washings of partially saponified wool fat two saturated alcohols and one unsaturated alcohol. His experiments further proved that the more purified lanolin was, the lower was its power to absorb water, owing to the fact that during its purification the iso- and oxycholesterols were partly removed.

Unna,² in his paper, "Ointment Bases," states that "Eucerin" is a mixture of alcohols of the iso- and oxycholesterin group with petrolatum. He does not, however, give a commercial method for the preparation of these alcohols. The absorbing power of "Eucerin" is due to these alcohols, but Roemer (see below) claims that with the employment of cholesterols for ointment bases, hydrocarbons, such as mineral oil, benzol, etc., are essential, for it is due to them in combination that the absorbing property is imparted. Roemer,³ in his paper on "The Pharmacy of the Oxycholesterine Ointment Bases," confirms to a certain extent the work of Unna, but he also fails to give a method for the preparation of the alcohols.

Unna⁴ states that "Eucerin" has been used in skin preparations in Germany, especially in pure form for ichthyosis. According to the U. S. Dispensatory, 19th Edition, page 97, experiments have been carried on in reference to the absorption of wool fat by the skin. Patschkowski and Kaspar claim that the skin readily absorbs lanolin, but Ritter and Pfeiffer in a long series of experiments were unable to verify these results. Grimm⁵ recommends in his paper "*Ueber die Verwendung von Aethyl in der Hautpflege*," cetyl alcohol for skin preparations on account of its absorption by the skin and he further states that he has found it useful in the treatment of prurigo, weeping eczema and other skin infections.

In view of the fact that Unna and Roemer have written about the cholesterols, which are aliphatic higher alcohols, and Grimm has given a favorable report on the use of cetyl alcohol, the writer came to the conclusion that the use of this alcohol was advantageous in a substitute for wool fat.

A review of the literature failed to show any commercial method for the preparation of cetyl alcohol. There are many references as to its preparation from spermaceti by saponification with caustic potash and shaking the aqueous soap solution with petroleum ether, this being analogous to the extraction of unsaponifiable matter. Spermaceti is essentially the cetylic ester of palmitic acid. Chevreul, in 1818, isolated the alcohol by the above method. Krafft⁶ prepared this substance by the reduction of palmitic acid to the aldehyde and heating it with barium formate. He also made the alcohol^{7,8} by heating the palmitic aldehyde with zinc dust and acetic acid and hydrolyzing the acetate formed.

Levene⁹ made this alcohol by the reduction of ethyl palmitate with sodium and absolute alcohol. Schorlemmer¹⁰ distilled a dry mixture of barium oxide with sebacic acid. A method given in several text-books for the preparation of cetyl alcohol was the saponification of spermaceti with an alcoholic potash, evaporating the alcohol, taking up the residue with water, adding calcium chloride solution to form calcium soap and extracting with suitable solvents. The above methods are useful for preparing small quantities of cetyl alcohol, but for commercial quantities these methods fall down for obvious reasons.

The method of Schorlemmer was found impracticable on account of sebacic acid not being a commercial substance. The extraction process causes a considerable loss of the solvent employed and formation of troublesome emulsions.

It has been found that cetyl alcohol distils at about 340–350° C. without decomposition and the writer's method is based upon the distillation of the calcium soap of spermaceti. Various experiments were performed with the following purposes in view: 1. Greatest yield of cetyl alcohol. 2. Cheapest process. 3. Most practical method.

Experiment I.—Spermaceti (20 Gm.) was saponified with alcoholic potash, the alcohol evaporated and the residue heated in a distilling flask to 340° C.

Experiment II.—Spermaceti (20 Gm.) was saponified with alcoholic potash, the alcohol evaporated and the soap dissolved in water. To the soap solution was added excess of a 10 percent calcium chloride solution. The calcium soap was separated and dried at 100° C. and finally distilled at 340° C.

Experiment III.—The method employed was the same as in Experiment II, except that the soap solution was saturated with sodium chloride. The soap was filtered, dried at 100° and distilled. Many minor experiments were performed by Method III, but they did not show results of such value as to warrant their description.

Experiment IV.—Twenty grammes of calcium oxide containing about 5 percent water were added to 15 grammes of melted spermaceti. The mixture was heated for about six hours, with occasional stirring. When cooled, the mass assumed a brown-yellow color. On distilling same, frothing occurred at 100° C., due to the escape of water. When the water had all been driven off the temperature was raised to 340° when the cetyl alcohol distilled as white fumes and on cooling formed oily drops, which became pure white upon solidification, the melting point being 49.5° C. The yield obtained was over six grammes, this being over 40 percent of the actual spermaceti taken. The theoretical yield (calculated) was about 45 percent.

This method gave a larger yield than the other three preceding methods, and, calculating the cost of the alcohol obtained on a 40 percent basis, was also cheaper in this method. The ideal temperature for the distillation of cetyl alcohol is 330°–350°, as above this temperature a yellow liquid distils, being strongly acid and having a pungent odor; its value commercially will be investigated at a later date.

A copper still, manufactured by Sargent & Co., Chicago, for the distillation of oils, etc., at high temperatures, was found to be of most service. Glass stills are apt to crack, due to the "caking" of the residue which can readily be removed from the copper still, after each distillation.

Mixtures were made having different quantities of base, cetyl alcohol, lanolin and water. The formula finally selected as being the best suitable for pharmaceutical compounding was the following: 70 parts petrolatum, 20 parts paraffin (m. p. about 60° C.), 10 parts cetyl alcohol, 5 parts lanolin (anhydrous), 100 parts water. This preparation stood in the laboratory for 17 months with absolutely no change in appearance or working qualities. The properties of this mixture are the same as wool fat, that is, taking up solutions of salts, powders, etc., etc. The advantage over wool fat is that it will not become rancid and is considerably cheaper. The reason for using 5 parts of lanolin in the mixture was to have the "unctuous" property of wool fat. This, however, is a minor physical property.

A cold cream having very desirable properties can be made by using the above formula except for the addition of 250 parts of water instead of 100. The method of mixing the various substances is of prime importance. The petrolatum, alcohol, lanolin and paraffin are melted together. The water is warmed to the same temperature as the melted fats and added slowly with constant grinding so as to get a smooth mixture.

Microphotographs of hydrous wool fat, the substitute, and cold cream have been taken and are shown below.

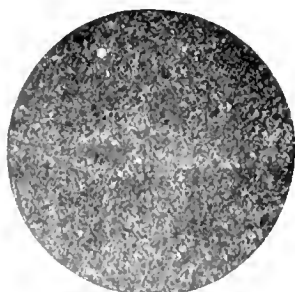


FIG. I.—HYDROUS LANOLIN.
(Wool fat with 30 percent water.)
Average cost per pound, 40 cents.

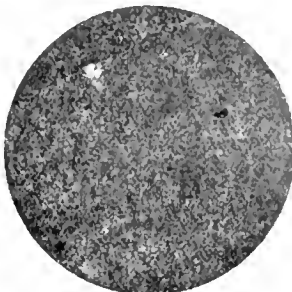


FIG. II—WOOL FAT SUBSTITUTE.
55 to 75 percent cheaper than
hydrous lanolin.



FIG. III.—COLD CREAM.
80 to 90 percent cheaper than
hydrous lanolin.

The writer believes that the wool fat substitute described in this paper will stand competition with wool fat and "Eucerin," both now and under normal conditions.

A further investigation is under way to determine the value of ceryl alcohol, $C_{27}H_{55}OH$, from Chinese wax and myricyl alcohol, $C_{30}H_{61}OH$, from Carnauba wax for the same purpose for which cetyl alcohol, $C_{16}H_{31}OH$, from spermaceti was put to, namely, in the preparation of a wool fat substitute.

In conclusion, due credit is hereby given to Mr. Sol. Bernstein, who spent considerable time in performing experiments and assisting in general to bring this paper to a successful issue.

1. *Berichte*, Vol. 29, p. 2890.
2. *JOURNAL A. PH. A.*, Vol. 1, p. 673.
3. *Ibid.*, Vol. II, p. 971.
4. *Proc. Royal Society of Medicine*, London, 1911-1912, p. 220.
5. *Dermatologische Zeitschrift*, Vol. 6, p. 158.

6. *Berichte*, Vol. 13, p. 1416.
7. *Ibid.*, Vol. 16, p. 1721.
8. *Ibid.*, Vol. 17, p. 1627.
9. *J. Biol. Chem.*, Vol. 20, p. 121.
10. *Berichte*, Vol. 3, p. 616.

OTHER REFERENCES.

Jahresberichte, 1862, p. 413.

Journal für praktische Chemie, Vol. 43, p. 148.

Annalen, Vol. 131, p. 283.

Ibid., Vol. 83, p. 16.

Berichte, Vol. 28, p. 3135.

Ibid., Vol. 29, p. 618.

Ibid., Vol. 29, p. 1474.

Ibid., Vol. 31, p. 97.

Ibid., Vol. 31, p. 1122.

Apoth. Zeit., Vol. 20, p. 857.

Journal für praktische Chemie, Vol. 9, p. 321.

J. Society Chem. Industry, Vol. 11, p. 134.

Ibid., Vol. 15, p. 14.

"Technology of Oils and Fats," by Lewkowitsch, p. 239.

Allen, "Organic Analysis," Vol. 2, Fourth Edition, p. 479.

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METHODS OF ANALYSIS OF ACETYSALICYLIC ACID AND ADULTERANTS.

BY HENRY L. SCHULZ.

With the collaboration of C. K. Glycart, A. W. Hanson and A. E. Stevenson.

In the spring of 1915, about ten months after the outbreak of the European war, the supply of acetylsalicylic acid was practically exhausted. The stocks still held by a few dealers were being offered at an advance of about two hundred per cent above the market price of the previous year. Owing to the scarcity of synthetic drugs of foreign origin, the "drug peddlers" and "drug brokers" who had been dealing in these products were unable to supply the demand and, not wishing to lose an opportunity to profit by the advanced prices, resorted to unscrupulous methods to obtain material for their trade.

Information that acetylsalicylic acid was being adulterated reached the Department in the early part of June 1915. An investigation was begun and samples collected and analyzed. These samples, mostly tablets, showed a marked variation in composition. Some were pure acetylsalicylic acid, others contained only small amounts, and a number did not contain any. As the combinations of substances found in the spurious samples differed widely, it was concluded that several manufacturers were adulterating acetylsalicylic acid, and steps to locate them were immediately taken. After some difficulty, consignments of spurious acetylsalicylic acid were found to have originated in Cleveland, Indianapolis, Memphis, St. Louis and Chicago. For the purpose of hiding their identity and to make it more difficult to trace shipments, some of these adulterators would use fictitious shippers' names and addresses on the packages sent out by them.

Previous to 1917, before the patent on acetylsalicylic acid expired, its sale was restricted in this country, and reputable wholesale druggists refused to handle it except under the trade name "Aspirin." As stated above, most of the acetylsalicylic acid was sold by drug brokers and peddlers who frequently carried their entire supply in a trunk or suitcase and disposed of it in such quantities as the druggist or dealer might wish to buy. A number of the shipments sent to brokers and peddlers by these adulterators were located and immediately confiscated by inspectors of this Department. The investigation showed that some of these manufacturers would deliver the unlabeled, spurious mixture to manufacturing pharma-

ceutical houses to have it compressed into tablets, while others would do their own compressing. The extent to which this fraud was perpetrated can be estimated when it is considered that one of these adulterators sold over twelve hundred pounds of this product in one month. This same manufacturer did not confine his activities to acetylsalicylic acid, but also made adulterated ichthyol, creosote, carbonate, potassium guaiacol, sulphonate, etc., samples of which were collected and analyzed. Most of these unscrupulous manufacturers have already been tried and convicted in the United States Courts, and several were sentenced to serve a term in prison.

During this investigation scores of samples of acetylsalicylic acid were collected and analyzed. While many of these were pure, the majority consisted of one of the following combinations:

1. Acetanilid or acetphenetidin, citric acid, salicylic acid, and milk sugar.
2. Acetanilid, salol, salicylic acid, and milk sugar.
3. Acetylsalicylic acid, milk sugar, and starch. (The tablets contained only 20 percent of the amount declared.)
4. Milk sugar, alum, and acetanilid.
5. Acetylsalicylic acid and salol.
6. Milk sugar, starch, and calcium acid phosphate.
7. Tartaric acid, milk sugar, and boric acid, both with and without acetanilid.
8. Acetanilid and tartaric acid.
9. Milk sugar, cream of tartar, and salicylic acid.
10. Milk sugar and cream of tartar.

Owing to the variation in composition of these samples, the usual methods for examining acetylsalicylic acid could not always be followed. Therefore special methods were compiled for the qualitative and quantitative analyses of the different combinations. These are given below.

Acetylsalicylic acid usually occurs in the form of colorless crystalline needles with an acidulous taste. It is soluble in 100 parts of water and freely soluble in alcohol, ether and chloroform. Its melting point is usually given as 135° C. A number of apparently pure samples were found to melt as low as 130° C.

QUALITATIVE TESTS.

Since many samples contain a very high percentage of chloroform-insoluble material, better results will be obtained by applying the qualitative tests to the chloroform-soluble substances and chloroform-insoluble substances after they have been separated. The taste of the insoluble residue will readily indicate sucrose, acids, or acid salts if present.

Free Salicylic Acid.—Shake 0.5 Gm. of the sample with 10 Cc. of cold water and filter the liquid. Add a drop of dilute ferric chloride solution to the filtrate. This should not produce more than a very faint violet color. If boiled with water for several minutes acetylsalicylic acid is hydrolyzed and the addition of ferric chloride to the filtrate will produce a deep violet color characteristic of salicylic acid.

Salicylic Acid and Salol. Boil 0.5 Gm. of the sample with 10 Cc. of normal sodium hydroxide for two minutes, cool, and add an excess of dilute sulphuric acid. Acetic acid will be liberated and delicately violet-colored crystals of salicylic acid will be precipitated. These crystals, when washed and dried, should melt at 157° . If phenyl salicylate (salol) is present, the odor of phenol will be recognized on acidifying. Salol may frequently be recognized by its characteristic odor.

Acetanilid.—Heat 0.2 Gm. of the sample with 5 Cc. of a ten percent solution of potassium hydroxide; then add 0.1 Cc. of chloroform and again heat. The odor of phenylisocyanide should not be evolved.

Acetphenetidin.—Heat 0.2 or 0.3 Gm. of the sample with 10 Cc. of dilute nitric acid. If an intense yellow color develops, acetphenetidin is indicated.

Sugars, Starch or Salts.—0.5 Gm. of the sample should be completely soluble in 15 Cc. of chloroform or alcohol.

Test any chloroform-insoluble residue for starch with iodine.

The presence of lactose is indicated (a) if a yellow color develops on boiling a 0.5 Gm. sample with potassium hydroxide solution, (b) if a water solution of the chloroform-insoluble residue reduces Fehling's solution.

Inorganic Impurities.—Shake two Gm. of the sample for several minutes with 25 Cc. of water, filter and test separate portions of the filtrate for metals, chlorides, sulphates, carbonates, borates and phosphates, according to the usual qualitative methods prescribed for these substances in the Pharmacopoeia, or other standard books.

QUANTITATIVE METHODS.

Substances Determined in the Original Sample.

Ash.—The residue of the ignited powder should not be over 0.2 percent. (On compressing acetylsalicylic acid into tablets some inert binding and lubricating materials are generally added which may increase the ash.)

Acetylsalicylic Acid.¹—The following double titration is very satisfactory when examining pure acetylsalicylic acid or tablets containing the usual excipients sugar, starch and talc, since these substances do not interfere with the titration. In the presence of acids, acid salts, salol, etc., the method is not satisfactory.

Weigh 0.3 Gm. of the finely powdered material into an Erlenmeyer flask, dissolve as quickly as possible in about 10 Cc. of cold neutral alcohol (95 percent), add a drop of phenolphthalein solution, and titrate with $\frac{N}{10}$ potassium hydroxide. Note the volume of $\frac{N}{10}$ alkali required, then add a volume of the alkali equal to that required for the first titration plus 5 Cc., and place the solution on a steam bath for 15 minutes. Titrate the excess of alkali with $\frac{N}{10}$ acid.

If the product is pure the total amount of alkali required should be twice that of the first titration. Each cc. of $\frac{N}{10}$ alkali is equivalent to 0.009 Gm. acetylsalicylic acid.

If free acids are present, the amount of acetylsalicylic acid may be calculated by multiplying the number of Cc. of $\frac{N}{10}$ alkali required for the second or hot titration by 0.018.

The cold titration should be made with as little delay as possible since the acetylsalicylic acid hydrolyzes very rapidly liberating acetic and salicylic acid, which would require more alkali to neutralize than the original substance. If salol is present the odor of ethyl salicylate will be noticed after heating the alcoholic mixture.

Total Salicylates.²—Dissolve 1 Gm. of the material in a slight excess of dilute alkali, heat on a steam bath for 15 minutes, then carefully transfer to a separatory funnel, acidify with hydrochloric acid, and extract with from 3 to 5 25-Cc. portions of chloroform to remove all traces of salicylic acid from the mixture. Treat each portion of chloroform extract in succession in a second separator with 20 Cc. of water containing 1 Gm. of anhydrous sodium carbonate for every 100 mg. of salicylic acid to be neutralized. Shake the solutions vigorously, and after separating the layers wash each portion of chloroform in another separator with 5 Cc. of water. On completion of this operation, unite the water layer with the main aqueous soda solution. Dilute the alkaline solution to a known volume, transfer an aliquot representing about 100 mg. of salicylic acid, to a 200 Cc. Erlenmeyer flask, and dilute to about 100 Cc. Heat the solution nearly to boiling; then add from a burette 25 to 40 Cc. of strong (about $\frac{N}{3}$) iodine solution, sufficient to insure an excess of this reagent during digestion and heat the mixture for an hour on the steam bath. Discharge the free iodine with a few drops of thiosulphate solution, decant the clear liquid

through a tared Gooch filter, care being taken that most of the precipitate remains in the flask. To the latter add 50 Cc. of boiling water. Digest for 10 minutes on the steam bath; then filter, gradually washing all the reddish substance into the Gooch filter with 200 Cc. of hot water, dry at 100° and weigh. Multiply the weight of precipitate by the factor 0.4016 to obtain the quantity of salicylic acid present in the aliquot.

Substances Soluble in Chloroform.—Separation of constituents (in mixtures containing sugar, inorganic salts, salicylic acid, acetphenetidin, and acetanilid, with little or no acetylsalicylic acid).

Accurately weigh 2 or 3 Gm. of the finely powdered sample into a counterpoised filter, and wash it with successive small portions of chloroform to extract all the soluble substances. The last portion of the chloroform should be dropped along the upper edge of the filter to remove any crystals which may have formed. Collect the solvent in a tared dish, evaporate at 60°, dry and weigh the residue, redissolve in 10 Cc. of cold 95% alcohol, add a drop of phenolphthalein solution, and titrate with $\frac{N}{10}$ alkali. Calculate the acidity as salicylic acid. Add an excess of 0.5 Cc. of $\frac{N}{10}$ alkali, and heat on a steam bath for 2 or 3 minutes. If the solution is partly or completely decolorized, acetylsalicylic acid or salol is indicated. (Salol will produce ethyl salicylate, which is readily detected by its wintergreen like odor.)

Transfer the titrated solution to a separatory funnel, using 20 Cc. water and 25 Cc. of chloroform to wash the dish. Then add about 10 Cc. of 1% potassium hydroxide solution, shake, and when the two liquids have separated, carefully transfer the chloroform to another separator. Repeat the extraction twice, using 15 and 10 Cc. chloroform. Filter the chloroform into a tared dish, evaporate, dry and weigh. This residue contains the acetphenetidin, acetanilid, and salol.

Combine the aqueous washings and reserve for the determination of total salicylates. The melting point of the chloroform residue should be determined and other tests that may be necessary to identify the residue should be made. Acetanilid melts at 115°, acetphenetidin at 135°, and salol at 42°.

Acetanilid and acetphenetidin may also be determined by the following methods:

*Acetanilid.*³—Transfer 0.30 Gm. of the chloroform-soluble residue redissolved in chloroform to a 200 Cc. flask, add 10 Cc. of dilute sulphuric acid (1 to 10 by volume), and heat on a steam bath until the volume is reduced to 5 Cc. If the odor of acetic acid is present, add 10 Cc. of water and continue the digestion until the liquid is again reduced to 5 Cc.; then cool, transfer to a separatory funnel with water, so that the final volume does not exceed 20 Cc. Add 30 Cc. of chloroform, shake the mixture gently for 1 minute and, after the layers have separated, withdraw the lower layer through a small dry filter. Repeat the extraction with 20 and 15 Cc. chloroform. Discard the chloroform and carefully draw off the aqueous acid solution remaining in the separator into an Erlenmeyer flask. Rinse the filter and funnel with several 5 Cc. portions of water to remove all traces of the former contents. Heat the liquid on a steam bath for 10 minutes to expel the chloroform. After cooling, add 10 Cc. of concentrated hydrochloric acid. Run in gradually, and with frequent shaking, a standard solution of potassium bromide-bromate until a faint yellow color persists. From the amount of standard solution required calculate the percentage of acetanilid in the chloroform-soluble residue, as well as in the original mixture.

The standard bromide-bromate solution is prepared as follows: Dissolve 50 Gm. of potassium hydroxide in a small quantity of water. Add a slight excess of bromine, dilute with water to dissolve any separated salts, boil to expel excess of bromine, and dilute to 1 liter. Standardize the solution against well-dried, recrystallized acetanilid, adjusting the solution so that each Cc. is equivalent either to 5 or to 10 mg. of acetanilid.

*Acetphenetidin.*³ Proceed as directed under "Acetanilid" up to and including the extraction of the hydrolyzed acid mixture with chloroform. Treat the aqueous acid solution of phenetidin sulphate remaining in the funnel with successive small portions of solid sodium bicarbonate until an excess of the former persists at the bottom of the mixture. Add 50 Cc. of chloroform

and, for every 100 mg. of acetphenetidin present, 5 drops of acetic anhydride. Shake the mixture vigorously for some time, allow the layers to separate, and withdraw the chloroform into a second separator containing 5 Cc. of water. Shake this mixture, and after separation pass the lower layer through a small dry filter into a 200 Cc. Erlenmeyer flask. Distil over about 40 Cc. of the chloroform, using the distillate for further extraction. Make a second and third extraction of the original aqueous solution and wash and distil as before. Completely transfer the chloroform residue to a tared 50 Cc. crystallizing dish or beaker, evaporate on the steam bath to apparent dryness, and finally remove any considerable excess of acetic anhydride by repeated additions of 1 Cc. of fresh chloroform to which has been added a drop of alcohol.

The regenerated acetphenetidin should finally appear as a white, crystalline mass, with a faint acetous odor. The latter will completely disappear on standing some hours in the open or in a vacuum desiccator over lime. Weigh the residue from time to time until the final weight differs from the preceding not more than 0.05 mg.

*Salol.*⁵—If salol is substituted for acetylsalicylic acid, its presence is readily detected in the chloroform-soluble residue by qualitative tests, odor, and by the melting point ($42^{\circ}\text{C}.$). In mixtures containing salol, acetanilid, or acetphenetidin, the salol may be determined by difference or by titration with standard bromide-bromate solution.

1. *Salol by Difference.*—In 0.3 Gm. of the chloroform residue determine the amount of acetanilid or acetphenetidin by acid hydrolysis as directed in the methods for acetanilid. To determine the amount of salol, subtract the weight of acetanilid or acetphenetidin found from the weight of chloroform residue taken.

2. *Salol by Alkaline Hydrolysis.*—Heat the chloroform-soluble residue from 1 Gm. sample with 20 Cc. of 2.5 percent caustic alkali on a steam bath for 10 minutes, cool and transfer quantitatively to a separatory funnel. Extract the solution with four 30 Cc. portions of chloroform. Discard the chloroform and transfer the alkaline solution from the separatory funnel into a 200 Cc. graduated flask. Wash the funnel, add the washings to the flask, and make up to the mark with water. Take an aliquot representing not more than 75 mg. salol, add an excess (about 45 to 50 Cc.) of standard bromide-bromate solution, and follow this with 10 Cc. of concentrated hydrochloric acid. Close the flask and shake 1 minute; then shake at intervals over a period of $\frac{1}{2}$ hour. At the end of this time add 10 Cc. of 15 percent potassium iodide solution, agitating the closed flask at intervals for 15 minutes. Titrate the free iodine with standard thiosulphate previously adjusted to the standard bromine solution, 1 Cc. of which is equivalent to 0.001784 Gm. salol. From the number of Cc. of standard bromine solution required, calculate the salol on the basis of 12 atoms of bromine to 1 molecule of salol.

If salicylic acid also is present the amount should be determined on a separate portion of the chloroform-soluble residue by dissolving a known weight of the residue in 10 Cc. of alcohol, adding 10 Cc. of water and 2 drops of methyl red indicator, and titrating with $\frac{N}{10}$ alkali. One Cc. of $\frac{N}{10}$ alkali represents 0.0138 Gm. salicylic acid. The amount of salicylic acid found, as well as the amounts of acetphenetidin or acetanilid found, should be subtracted from the weight of the residue taken, if salol is determined by difference.

If Method 2 is used in the presence of salicylic acid the quantity of standard bromide-bromate solution required for the salicylic acid must be deducted before the amount of salol is calculated.

SUBSTANCES INSOLUBLE IN CHLOROFORM.

The chloroform-insoluble residue remaining on the filter paper after the original extraction with chloroform is allowed to dry in the air. It is weighed and is

then washed with water until all water-soluble matter has been removed. The residue on the filter consists of starch, talc, etc., while in the aqueous solution the following adulterants, if present, will be found:

Alum, boric acid and salts, citric acid and salts, tartaric acid and salts, phosphates, and milk sugar.

Make the solution to a known volume and in aliquots determine:

Acidity

Reducing sugars

Phosphoric acid

Alum

Citric acid

Tartaric acid

according to methods outlined in Leach "Food Inspection and Analysis," John Wiley & Sons, or *Journal of the Association of Official Agricultural Chemists* (1916), "Methods of Analysis," Williams & Wilkins Co., Baltimore.

REFERENCES.

1. Allen, "Commercial Organic Analysis," 4th Edition, 1910, Vol. III, p. 504.
2. Emery, "Headache Mixtures," U. S. Dept. Agriculture, Bur. of Chemistry, *Bull.* 152, p. 327. Also *Jour. A. O. A. C.* (1916), Vol. II, "Drugs," p. 351-358.
3. Emery, "Headache Mixtures," U. S. Dept. Agriculture, Bur. of Chemistry, *Bull.* 132, p. 197.
- 4 and 5. Emery, *et al.*, "Estimation of Phenacetin and Salol in Admixture," *J. Ind. Eng. Chem.* (1915), p. 681.

FOOD AND DRUG LABORATORY,
CHICAGO, ILL.



JOHN G. GODDING, BOSTON, MASS.
Elected Member of Council, A. Ph. A., to succeed
Thomas F. Main, deceased



JOHN C. WALLACE, NEW CASTLE, PA.
Retiring Chairman of National Drug Trade
Conference

PRACTICAL PHARMACY SECTION

EMERGENCY SUBSTITUTES FOR SUGAR, SYRUP AND GLYCERIN.*

BY CURT P. WIMMER.

In bringing the subject of emergency substitutes for sugar, syrup and glycerin before you at this time, I hope that no one will take from this paper the impression that I advocate the illegitimate use of substitutes in any manner, shape or form. The word "substitute" has an unpleasant flavor in American pharmacy and the "substitutor" in normal or abnormal times is an unprincipled scoundrel who fully deserves whatever punishment the law provides for him.

Neither do I desire to appear before you as an alarmist who proclaims that sugar and glycerin will shortly disappear from the market or that their use for medicinal purposes will be prohibited by the government. On the contrary, I have entire confidence that our government will at all times see to it that a moderate supply will be available for medicinal uses.

This paper is written with only *one* object in view, and it is the following: Our country is engaged in a great war, in a war which requires that all of our resources be mobilized and strained and used for the successful prosecution of the conflict. It is the first duty of every good and loyal citizen to support the government, heed its warnings and to coöperate to the best of his ability. We are at present in the midst of a scarcity of sugar. The government has asked us to use as little of it as possible, so as to insure at least a moderate supply wherever it is needed most urgently. Glycerin also is becoming more and more scarce, a fact evidenced by the slow but steady increase in price for this substance. What, then, can the pharmacist do to assist the government? Can he get along with less sugar and glycerin in his preparations? Can he do without them altogether? What substances or preparations might possibly be used to advantage in their places?

It is the object of this paper to answer these questions. For purposes of simplicity, the paper is sub-divided into two parts, *viz.*, (1) Sugar and Syrup Emergency Substitutes, and (2) Glycerin Emergency Substitutes, and under each heading will be included a brief review of relevant conditions and means of meeting them, as found in some of the other warring countries. Most of the information regarding the latter has been gained by a careful perusal of recent foreign publications, especially of *The Chemist and Druggist* of London.

Another fundamental question must be answered: Are the quantities of sugar and glycerin used in compounding medicines so large, that their continued unrestricted use for this purpose might become embarrassing to the food administrators? Without hesitation I say "Yes." To my regret, I have no statistics available giving the amount of sugar or of glycerin used by the pharmaceutical profession

*Read before New York Branch A. Ph. A., December meeting, 1917.

and the drug trade, but no doubt it is very large. And furthermore, much of it, I believe, can be saved to be used either to feed the mouths of the hungry, or to be made into explosives.

About three months ago, the General Council of Medical Education of England have, by authority vested in them, altered and amended the British Pharmacopoeia and have withdrawn seventy-three preparations, with only one object in view: to save sugar and glycerin. The following preparations have been made unofficial:

- (1) All Confections (except pepper and rose)
- (2) All Glycerites
- (3) All Mixtures (except chalk, compound iron and castor oil mixtures)
- (4) All Syrups (except syrupus, chloral, codeine phosphate, iron iodide, iron phosphate with quinine and strychnine, glucose)
- (5) All Troches (except krameria, cocaine, morphine, morphine and ipecac)

Also: Effervescent Citrated Caffein
Compound Decoction of Aloes
Saccharated Solution of Lime
Honey and Borax
Compound Almond Powder
Compound Licorice Powder
Suppositories of Glycerin
Compound Tincture of Cardamom
Tincture of Kino
Tincture of Wild Cherry
Comp. Tincture of Rhubarb
Comp. Tincture of Senna
Ointment of Iodine.

Surely this momentous action would not have been taken, had not actual experience shown its advisability. We may well take a lesson from countries who have been in the war longer than we have been. The withdrawal of these preparations has opened up a number of interesting questions. One of them was to the effect that, legally, this withdrawal made automatically official the older formulas which had been superseded by those withdrawn. Another point raised was that all of these important preparations were, by this withdrawal, left without any standard of any kind, a prey for the unscrupulous. The Council recently announced that they would publish substitute formulas to be used in place of the official ones, and a pamphlet regarding them is probably in the hands of the English pharmacists by this time.

The English pharmacist does, of course, not dispense any of these preparations without affixing to the container a label, showing the words "War Emergency Formula," followed by a statement to the effect that although the formula of the preparation has been changed, its physiological activity has in no wise been altered. At the same time, physicians are being requested to cease prescribing the deleted galenicals.

In our own Pharmacopoeia, sugar and glycerin are made use of in many preparations. They are, in part, the following:

| | |
|-----------------------------------------------------|-------------------------------------------------------------------|
| Compound Licorice Powder contains..... | 50 $\frac{C}{100}$ sugar |
| Compound Chalk Powder contains..... | 50 $\frac{C}{100}$ sugar |
| Aromatic Elixir..... | 31.8 $\frac{C}{100}$ sugar |
| Saccharated Ferrous Carbonate..... | 70 $\frac{C}{100}$ sugar |
| Aromatic Fluidextract Cascara Sagrada contains..... | 20 $\frac{C}{100}$ volume glycerin |
| Glycerites: Tannic Acid..... | 80 $\frac{C}{100}$ weight glycerin |
| Starch..... | 80 $\frac{C}{100}$ weight glycerin |
| Boroglycerin..... | 69 $\frac{C}{100}$ weight glycerin |
| Hydrastis..... | 50 $\frac{C}{100}$ volume glycerin |
| Phenol..... | 80 $\frac{C}{100}$ volume glycerin |
| Solution Magnesium Citrate..... | 14.5 $\frac{C}{100}$ w/v sugar |
| Mass of Ferrous Carbonate..... | 25 $\frac{C}{100}$ sugar |
| Mucilage of Tragacanth..... | 18 $\frac{C}{100}$ weight glycerin |
| Suppositories of Glycerin about..... | 85 $\frac{C}{100}$ weight glycerin |
| Syrups: Acacia..... | 80 $\frac{C}{100}$ sugar |
| Citric Acid..... | 70 $\frac{C}{100}$ sugar |
| Hydriodic Acid..... | 57.50 volume syrup |
| Orange..... | 82 $\frac{C}{100}$ w/v sugar |
| Orange Flower..... | 85 $\frac{C}{100}$ w/v sugar |
| Calcium Lactophosphate..... | 65 $\frac{C}{100}$ w/v sugar |
| Ferrous Iodide..... | 57.5 $\frac{C}{100}$ weight sugar |
| Hypophosphites..... | 60 $\frac{C}{100}$ w/v sugar |
| Ipecac..... | 70 $\frac{C}{100}$ w/v sugar + 10 $\frac{C}{100}$ volume glycerin |
| Lactucarium about..... | 65 $\frac{C}{100}$ w/v syrup + 20 $\frac{C}{100}$ volume glycerin |
| Tar..... | 85 $\frac{C}{100}$ w/v sugar |
| Wild Cherry..... | 80 $\frac{C}{100}$ w/v sugar |
| Rhubarb..... | 85 $\frac{C}{100}$ volume syrup |
| Rhubarb Aromatic..... | 85 $\frac{C}{100}$ volume syrup |
| Sarsaparilla Compound..... | 75 $\frac{C}{100}$ volume syrup |
| Squill..... | 80 $\frac{C}{100}$ w/v sugar |
| Squill Compound..... | 83 $\frac{C}{100}$ volume syrup |
| Senega..... | 80 $\frac{C}{100}$ volume syrup |
| Senna..... | 75 $\frac{C}{100}$ volume syrup |
| Tolu..... | 82 $\frac{C}{100}$ w/v sugar |
| Ginger..... | 82 $\frac{C}{100}$ w/v sugar |
| Tinctures: Gentian Compound..... | 10 $\frac{C}{100}$ volume glycerin |
| Lactucarium..... | 25 $\frac{C}{100}$ volume glycerin |
| Rhubarb..... | 10 $\frac{C}{100}$ volume glycerin |
| Rhubarb Aromatic..... | 10 $\frac{C}{100}$ volume glycerin |
| Troches: Acid Tannic..... | 80 $\frac{C}{100}$ sugar |
| Ammonium Chloride..... | 50 $\frac{C}{100}$ sugar |
| Potassium Chlorate..... | 80 $\frac{C}{100}$ sugar |
| Sodium Bicarbonate..... | 65 $\frac{C}{100}$ sugar |
| Ointments: Acid Tannic..... | 20 $\frac{C}{100}$ weight glycerin |
| Iodine..... | 12 $\frac{C}{100}$ weight glycerin |

This list is not given for the purpose of recommending the deletion of some of the formulae for the period of the war, although some such step may yet have to be taken, if the present scarcity of sugar continues, or if the supply of glycerin be withdrawn from the open market. But the list shows to what extent sugar and glycerin are used in galenical pharmacy. Add to this the amount of sugar used in the numberless proprietary remedies and you will have an idea of the total used for medicinal purposes.

In discussing various substitutes, let us not forget that they cannot be reasonably expected to be the equal in all respects of the substance they are to replace.


Sugar and glycerin owe their general use to the fact that they each have a number of valuable and divers properties, which make them so useful to us. A substitute for sugar, for example, cannot be expected to have *all* of the physical and chemical properties of sugar. If, however, we succeed in devising a preparation which, in a *given galenical*, will satisfactorily replace the sugar, then the substitute must be called a success. So, for different classes of galenicals, or even for certain individual preparations, different substitutes may have to be used. The nature of the substitute will depend entirely, in each case, upon the especial property of the sugar or glycerin which we desire to impart.

In England, the wholesale manufacturing as well as the retail pharmacist must make application to the local food controller for a sugar supply for the coming year. This application must be made on special blanks, which require the following information: 1—Class of manufacture. 2—Stock of sugar on hand. 3—Amount of sugar used in 1915. 4—Quantity applied for. 5—Usual supplies. 6—Remarks.

At this writing the food controller had allowed to manufacturing pharmacists 50 per cent of the total amount used by them in 1915.

1. SUGAR AND SYRUP EMERGENCY SUBSTITUTES.

In arranging the various properties of sugar according to their relative importance, in medicinal preparations, I should unhesitatingly say that, first, sugar is used because of its taste, second, because it preserves, third, because it imparts consistence or bulk, and, lastly, because it has a slight physiologic action. For purposes of substitution the last-named property must at once be discounted, since the sugar of a preparation depending in its physiological action solely upon this substance simply cannot be replaced by anything else. Such "medicines" I will exclude from consideration here. To impart to preparations a sweet taste, nothing is more suitable than saccharin.

Saccharin, or O-sulphamino benzoic acid anhydride,  SO_2
 $\text{CO} > \text{NH}$, discovered

accidentally by Fahlberg in 1878, is a microcrystalline powder, soluble in water 1 : 290, melts at 220° C. It is about 500 times sweeter than sugar, and, therefore, at least as cheap as sugar if it can be bought for about \$40 a pound. The price of saccharin to-day is quite unsettled, but the amount of the substance that might be used in medicinals would be so small that the matter of cost would hardly play an important part. I believe that saccharin will come into its own through this war. In spite of the reports of eminent authorities that saccharin is harmless if taken in small quantity, this substance has become almost an outlaw in many countries. No doubt, economic and political considerations had something to do with the making of the laws against its use, but such considerations do not hold now and the question of a limited use of this substance in galenicals might well be discussed. Professor Joachimoglu, of the University of Berlin, is reported to have recently stated that after extensive experiments and observations during this war, he is convinced that saccharin is harmless. Professor E. R. Watson, of the University of Leeds, recommends its use in solution. In the city of Manchester, signs in various shops advertise saccharin as being "better and cheaper" than sugar. The Italian government permits the sale of an artificial sugar, a dilution

of saccharin 6 to dextrose 1000, in the pharmacies. Unfortunately, a vicious rumor has been spread in certain Italian localities among the ignorant, that this artificial sugar may cause cancer, and so the pharmacists are having a hard time trying to dispose of it.

Very recently, the *Société de Thérapeutique* of France passed resolutions requesting the government to permit the use of a saccharin-dextrose mixture, 1 : 1000, for sweetening purposes. It is, however, not to be used in jams, chocolates and other articles of food.

I might also direct your attention to the report on saccharin of the Referee Board of the American Medical Association. This report shows that saccharin in small quantities, 0.3 Gm. per day or less, is without deleterious or poisonous action, that in larger quantities, especially over 1 Gm. per day, when taken for a considerable period of time, it is liable to produce disturbances of digestion. Again I ask that my position in this matter be not misunderstood. I believe that under no circumstances should the use of saccharin be permitted in any preparation which depends for its use entirely or in part, upon the presence of sugar, especially in those used as a food.

The property of syrup of lending consistency and, in more limited degrees, of preserving, may well be imparted to galenicals by glucose, or similar substances, such as honey, invert sugar, marmalade or molasses, or mixtures of these. The proposition most frequently met with in English current publications is to take glucose, dilute it with water to the specific gravity of syrup, 1.313, then to boil and strain and to add some chloroform. This preparation is claimed to keep for months.

Acting upon this suggestion, I procured some liquid glucose and diluted it to the desired specific gravity, but found that the viscosity of this preparation was very much higher than that of the U. S. P. syrup. Inasmuch as the specific gravity seemed to me a less desirable standard to use than viscosity, I prepared several mixtures of glucose and water and by the aid of Engler's viscosimeter established that a mixture of 66 $\frac{2}{3}$ percent by volume of glucose with water at 25° C. has approximately the same viscosity, or fluidity, as the official syrup. Next, I procured some Karo syrup (Crystal White brand) of the Corn Products Manufacturing Company, and established by a series of experiments that a mixture of 75 percent of this Karo with 25 percent (by volume) of water, at 25° C. has a viscosity practically the same as that of official syrup. With the kind assistance of some of our students, a series of taste experiments was carried out, with a view of establishing the relative sweetness of the various syrups. Dilutions ranging from 1 : 10 up to 1 : 200 were prepared and the concentration at which the sweet taste was first tasted distinctly, was determined. We found the following ratio:

Syrup, U. S. P., taste appears in dilution 1 : 110.

Glucose, 66 $\frac{2}{3}$ percent volume, taste appears in dilution 1 : 25.

Karo, 75 percent volume, taste appears in dilution 1 : 35.

Taking the sweetness of official syrup as one, it appeared that the glucose preparation was 0.227 and the Karo preparation 0.32 as sweet.

Glucose is rated to be about one-third as sweet as sugar, and basing upon this ratio, and, furthermore, upon the ratio 1 : 500 for relative sugar-saccharin sweetness, I expected that about 1.20 Gm. of saccharin would have to be added to every 1000 mls of glucose syrup to get the same relative sweetness as that of official syrup. We found, however, that sweetness cannot, with safety, be calculated by a rule of

mixtures. On making dilutions and tasting them, we found that 1.35 Gm. of saccharin are required to every 1000 mils to approximately impart the same degree of sweetness to the glucose syrup as the sucrose syrup possesses. Similar experiments made with the Karo syrup showed that 1.20 Gm. of saccharin are required for every 1000 mils of 75 percent volume syrup. The formulae read, consequently, as follows:

WAR EMERGENCY FORMULA I.

| | |
|-------------------|----------|
| Glucose, liq..... | 667 mils |
| Water..... | 333 mils |
| Saccharin..... | 1.35 Gm. |

WAR EMERGENCY FORMULA II.

| | |
|--------------------------|----------|
| Karo, crystal white..... | 750 mils |
| Water..... | 250 mils |
| Saccharin..... | 1.20 Gm. |

The saccharin dissolves readily upon applying heat to the syrup.

Such a preparation would, no doubt, answer very well in a number of medicinal preparations in place of syrup. It might have to be modified to suit especial cases, but that could easily be accomplished. Let us, however, not forget to mention possible objections to the use of this syrup. Liquid glucose usually contains traces of sulphur dioxide, about 200-300 parts per million. A glucose syrup cannot be used with any substance easily susceptible to reduction, and finally a glucose syrup is not as permanent as a sucrose syrup. The tendency to fermentation may, however, be overcome by an addition of a small amount of chloroform.

On the other hand, a glucose syrup might be even more advantageously used in cases where a reducing substance tends to retard decomposition as in ferrous preparations or hypophosphites. I have prepared a number of galenicals, which I submit to your kind judgment. They are syrup of hydriodic acid, syrup of ferrous iodide, syrup of rhubarb and syrup of tolu, also compound licorice powder. In the latter preparation the sugar has been replaced by a mixture of saccharin 1.50 to pure white dextrose 1000 parts. English pharmacists recommend the use of a mixture of almond meal 8 parts, and acacia 1 part, or of starch, or of a corn-meal-saccharin mixture in this case. I find the dextrose-saccharin mixture to be the best. Another substance, which, of late, has come into somewhat extensive use in place of sucrose in ice cream is invert sugar. It is somewhat sweeter than sugar, and its usefulness in the preparation of galenicals might also be looked into. Honey and manna must be mentioned. Manna is said to be especially serviceable for use with, and in the preservation of, iron preparations.

II. GLYCERIN EMERGENCY SUBSTITUTES.

The manufacture of glycerin for medicinal purposes has been discontinued in England for quite some months past, and pharmacists must be content to use whatever stocks may still be on hand. When this is used up, no further supply will be obtainable. They are looking forward to the time when they will have to do without this substance, altogether with some apprehension, for it cannot be readily replaced. They feel that the disappearance of glycerin from pharmaceutical uses would be a calamity.

In suggesting substitutes for glycerin they follow lines laid down by various investigators in Germany, where the glycerin shortage has been acute almost from the beginning of the war. Prominent among them was Dr. E. P. Unna who claims that a good glycerin substitute must have the following properties:

- 1—It must have fatty properties, but must not be sticky.
- 2—It must be hygroscopic, must not decompose at high temperature nor solidify at low temperature.

3—It must be inodorous, non-poisonous, non-irritating and have an agreeable taste.

Substitutes for glycerin are very numerous, and for simplicity's sake they may be subdivided into five classes as follows:

a—Solutions of gums, glues or other viscous substances, such as agar-agar, fish glue, Iceland moss, linseed, marshmallow root, salep, tragacanth. The principle objection to these preparations is that they require the addition of a preservative, borax, formaldehyde, etc. In this connection, I might mention that acetanilid is claimed to have been found a good preservative for mucilages. A number of preparations of such type are on the market in Germany, for example:

Lempellin, a mucilage of Irish moss preserved with borax and formaldehyde.

Algin, an infusion of laminaria stalks with sodium carbonate.

Novoglycerin, a solution of glue in water.

Glycerit, a quince seed mucilage, containing 10 percent of glycerin and a small amount of borax.

b—Solutions of sugar.—About 60 percent of sugar is required to obtain a liquid of about the same fluidity as glycerin.

c—Mixtures containing fats or oils.—Since glycerin has the advantage of freedom from greasiness, oils and fats should be present in a substitute in a diluted form, preferably emulsified. A German preparation, Proglycerin, is a diluted lanolin emulsion. Paraffin emulsions may also be used.

d—Solutions of certain salts.—These solutions are used whenever the hygroscopic property of glycerin is the one desired in the substitute. A solution of calcium chloride, 36 percent, is used for medicinal purposes. Perglycerin is a 45 percent solution of sodium lactate; Perkalglycerin a 60–80 percent solution of potassium lactate.

e—Various mixtures not classifiable under any one of the above.—A solution of magnesium chloride, 21 percent, with 60 percent glucose is claimed to be well adapted for technical purposes. A mixture of equal volumes of 2 percent gelatin solution and glycerin gave a good preparation.

We see that the range of glycerin substitutes is a very wide one indeed, but the following general considerations may help to simplify the problem before us:

1—In preparations where physiological activity depends entirely upon the presence of the glycerin, substitution should not be attempted at all. Examples of such preparations are: Glycerite of boroglycerin, glycerin suppositories, and compounds of glycerophosphates. Physicians might be requested to refrain from prescribing them.

2—In the case of preparations whose glycerin content is either small or non-essential, the glycerin might be omitted entirely or its amount might be reduced to a minimum. Examples of such preparations are: Ointment of iodine, compound tincture of gentian, mucilage of tragacanth, and others.

Glycerin is used extensively in hair tonics, face lotions and creams. To save this amount, the druggist might be advised to make a good lotion or cream of his own and to recommend it whenever glycerin is wanted for the purpose. I take the liberty of quoting you several formulae recommended by the *Chemist and Druggist*.

- | | | | |
|-------------------------------------------|-----------|-----------------------------------------------------------|-----------|
| 1—Benzoinated Lard..... | 15 grains | Water..... | 2 ounces |
| Powdered Hard Soap..... | 20 grains | Mucilage of Carrageen..... | 1 ounce |
| Mucilage of Quince Seed.... | 1½ ounces | Essence of Lily-of-the-valley | 15 minims |
| Camphor Water..... | 1½ ounces | | |
| 2—An Almond Lotion: | | 4—A very fine cream is obtained by the following formula: | |
| Almonds blanched..... | 40 grains | White Wax..... | 1 drachm |
| Rose Water..... | 1½ ounces | Spermaceti..... | 1 drachm |
| Orange Flower Water..... | 1½ ounces | Wool Fat..... | 1½ drachm |
| Bruse the almonds and triturate then add: | | Zinc Oxide..... | 2 drachms |
| Borax..... | 12 grains | Spirit of Camphor..... | 1½ drachm |
| Tincture of Benzoin..... | 10 minims | Radium Water..... | 1½ drachm |
| 3—Soft Soap..... | 20 grains | Cucumber Juice..... | 1 ounce |
| Anhydrous Wool Fat..... | 15 grains | Sesame Oil..... | 2½ ounces |
| Almond Oil..... | 1½ drachm | Synthetic Oil of Rose..... | 10 minims |

I have prepared some of these creams, and have them here. They are very good indeed.

To replace glycerin in hair tonics, I find "turkey-red oil" recommended. This is sodium sulpho-ricinoleate. It is miscible with water. To replace glycerin in preparations where "body" is required, the London Pharmaceutical Committee recommends the following preparations:

| | | |
|---------------------|----|--------|
| Gum Tragacanth..... | 30 | grains |
| Chloroform..... | 24 | minims |
| Water, to make..... | 10 | ounces |

For internal use, the following is claimed to be more suitable:

| | | |
|-----------------------|----|---------|
| Gum Tragacanth..... | 2 | drachms |
| Alcohol..... | 4 | drachms |
| Chloroform Water..... | 10 | ounces |

Another formula suggested is the following:

| | | |
|-----------------------|----|--------|
| Picked Carragean..... | 1 | ounce |
| Water..... | 25 | ounces |

And finally, another one:

| | | |
|------------------------|-----|--------|
| Washed Irish Moss..... | 1/2 | ounce |
| Water..... | 24 | ounces |

Keep boiling for fifteen minutes, strain with pressure, make up to 19 ounces with boiling water and add 1 ounce of glucose. Mix and strain.

I have prepared some of these mucilages and, they are here for your inspection. Some of those used in Germany are also included.

The subject of war emergency formulae is certainly a very important one at this time. It seems to me to be even worthy of official consideration by the American Pharmaceutical Association. War emergency formulas might be worked out by a properly constituted committee, certain definite propositions made and duly legalized. Congress would surely not stand in the way, nor would State officers refuse to coöperate. By judicious effort of this nature, the American Pharmaceutical Association would make itself of great assistance to both the government and the profession. To the government such assistance would, no doubt, be most welcome, and it would be the carrying out, in a measure, of the promise of support made to President Wilson at the outbreak of the war. To the pharmacist, advice as to what he should do and can do in this emergency would be most valuable. When common substances become scarce, the pharmacist will do the best he can (which in many instances is the worst) and, furthermore, the temptation to illegal substitution becomes great.

Let us not wait until we are asked to do it, but let us be prepared. In our national emergency don't let us be followers, let us be leaders for the country's good.

THE PREPARATION OF DICHLORAMIN T. AND CHLORINATED EUCALYPTOL 1,2.*

BY ROBERT B. KRAUSS.¹

Para-toluol-sulphonidichloramide was first prepared by Kastle, Keiser and Bradey² in 1896, who also prepared a number of related compounds. Since its introduction under the name of dichloramin T. by Dakin, Lee, Sweet, Hendricks and LeConte,³ the production of this substance on a large scale in pure form, as

EDITOR'S NOTE. See also comment on this paper under Local Branches, this issue.

*Read before Philadelphia Branch A. Ph. A., December meeting, 1917.

¹ Henry Phipps Institute of the University of Pennsylvania.

² *American Chemical Journal*, 18, 491, 1896.

³ *Journal American Medical Association*, 69, 27, 1917.

well as that of suitable solvents for its application, have become problems of importance.

As originally used for this purpose dichloramin T. was dissolved in a prepared eucalyptol (chlorinated) and used in this condition or further diluted with prepared paraffin oil (chlorinated).

It was early recognized by the author that the products obtained by chlorination may vary considerably, according to the conditions of chlorination. By continued chlorination, under certain conditions, a chlorinated eucalyptol, specific gravity 1.2, is obtained, which has been extensively studied by surgeons. As a solvent for dichloramin T. it seems to have all the desirable qualities with the exception of the solution being definitely stable. There seems to be some reason to believe that chlorinated eucalyptol 1.2 itself has some therapeutic value.

This evening I will present an outline of the methods for preparing para-toluol-sulphondichloramide, and chlorinated eucalyptol 1.2, and the specifications for both as prepared for federal medical authorities.

1. PREPARATION OF THE SULPHONIC ACIDS.

Beginning with toluol, the sulphonic acids are formed by mixing equal parts of concentrated sulphuric acid and toluol. On shaking or even on standing the toluol dissolves in the acid. When the top layer of toluol has disappeared the sulphonation mixture is poured into water and neutralized with lime. After filtering, the solution of the ortho and para calcium sulphonates is treated with sodium carbonate and boiled to form the sodium salts and precipitate calcium carbonate. The filtered solution is evaporated to dryness and carefully dried.

2. PREPARATION OF THE SULPHOCHLORIDES.

The powdered sodium sulphonates are treated with an equal weight of phosphorus pentachloride. After the pentachloride has disappeared the semifluid mass is heated on the water bath to complete the reaction and then poured on ice. The para-sulphochloride crystallizes after a time while the ortho derivative is a liquid. They are separated by centrifuging.

3. PREPARATION OF THE SULPHONAMIDE.

The para-sulphochloride is melted on the water bath and treated with an excess of ammonium carbonate. The odor of sulphochloride should no longer be observable. The mixture of ammonium carbonate and sulphonamide is extracted with water and dried. If the sulphonamide is not pure white it should be recrystallized from hot water.

4. PREPARATION OF THE DICHLORAMIDE.

The toluol-para-sulphonamide is dissolved in ten parts of 1 : 10 caustic soda (39° Bé.) and diluted with twenty parts of water. The solution is filtered through glass wool and then through double filter paper. This removes iron hydroxide from the strongly caustic solution.

Chlorine gas from a cylinder is then passed through the solution, cooled externally by ice, until a voluminous white precipitate of para-toluol-sulphondichloramide is formed. This is filtered off, thoroughly washed twice with 5 to 8 parts of water and finally with enough 10 percent alcohol to make a thin paste. The dilute alcohol washing should be done very quickly and the substance filtered off with the aid of a vacuum filter. It is then dried at a temperature not exceeding 55° C. in a vacuum dryer.

The method has the advantage that it is very rapid and avoids the use of chloroform as a solvent. It was developed in order to produce a dichloramin T. which would be comparatively stable. The product has a negligible ash and a good chlorine content, but no free chlorine on standing.

Calculated: Cl = 21.54 percent. Found: Cl = 21.42 percent; 21.37 percent.

The very considerable work done in the chemical laboratory of the Institute on the preparation and distribution of dichloramin T. for surgical purposes has suggested the following specifications as most suitable for this material when used as a disinfectant:

PHYSICAL PROPERTIES.

White powder or crystals with slight yellow-green tinge. Melting point, $78-84^{\circ}\text{C}$.

CHEMICAL PROPERTIES.

Soluble in cold chloroform with slight to no turbidity. (Any turbidity must be removable by shaking with anhydrous calcium chloride.) Soluble in prepared eucalyptol, Dakin and chlorinated eucalyptol 1.2. Ash, not over 0.2 percent; chlorine content, 29.0 percent to 29.54 percent; calculated chlorine, 29.54 percent.

The solubility in chloroform or similar organic solvent is important in that it shows the presence of inorganic impurities, calcium salts, etc. The material should not have strong odor of chlorine, showing instability. The melting point may vary within the limits indicated, owing to moisture. Sharp drying will decompose the substance.

SOLVENTS.

The eucalyptol, as first proposed⁴ by Dakin and Dunham, was chlorinated with potassium chlorate and hydrochloric acid according to the following method:

Five hundred Cc. eucalyptol (U. S. P.) are treated with 15 Gm. potassium chlorate and 50 Cc. concentrated hydrochloric acid. After twelve hours the oil is well washed with water and sodium carbonate solution. Dry sodium carbonate is added to the oil and the mixture is allowed to stand twenty-four hours. It is then filtered and dried with a little calcium chloride.

This method has the disadvantage that no definite amount of chlorine enters the eucalyptol. The chlorination depends on the rate of adding chlorate and hydrochloric acid as well as the light in which the process takes place. Samples may have 1 percent chlorine present or scarcely any, depending on whether chlorination took place in sunlight or on a dark day. The specific gravity of this oil may vary from 0.930 to 0.935.

PREPARATION OF CHLORINATED EUCALYPTOL 1.2.

It was found that by passing chlorine gas from a cylinder into eucalyptol the reaction proceeded much further than by the chlorate method heretofore described. When a specific gravity of 1.20 was reached a comparatively heavy oil, much less volatile than eucalyptol, was obtained.

The results of the use of this oil are well known to-day; briefly, it was found that it is a good solvent for dichloramin T., that it can be used in full strength on the skin and in open wounds and that the use of paraffin oil either as a diluent or as a means of preventing sticking of dressings is unnecessary.

The following is a sufficiently detailed statement of the method by which this oil is obtained:

Through a glass tube reaching to the bottom of a five-gallon bottle containing about 10 kilos of eucalyptol is passed chlorine from a cylinder. The oil should have a boiling point of $176-177^{\circ}\text{C}$. and a specific gravity of 0.925 to start. The process should be carried on in good daylight.

During the chlorination the temperature rises and should be kept below 80°C . by regulating the chlorine stream. Hydrochloric acid is given off and may be absorbed in alkali.

When a specific gravity of 1.19 is reached the oil is chlorinated sufficiently and the process is interrupted. The oil is then washed with about four liters of water, then shaken thoroughly with 250 Gm. dry sodium carbonate and allowed to settle. After carefully decanting from the carbonate, about 500 Gm. fused calcium chloride are added and the whole again shaken. On standing preferably over night, the oil is filtered, bottled and is then ready for use. It is a white or slightly amber-colored oil, specific gravity 1.2, with a chlorine content of about 31 percent. Such an oil will readily dissolve 20 percent of dichloramin T. which solution may keep in an amber bottle without decomposition for a month.

FURTHER PRODUCTS OF CHLORINATION.

By further chlorination of the 1.2 oil, products may be obtained having a specific gravity of 1.5 and higher. This may be carried out by chlorinating directly at 100°C . or with a solvent such as chloroform at its boiling point. The oil of specific gravity 1.4 is amber colored and of the

⁴ Dakin and Dunham, *British Medical Journal*, June 1917.

consistency of molasses. The dichloramin is still soluble, although to a less extent. The future may find a use for this type of oil, since the increased viscosity presents an advantage in certain cases.

Dichloramin T. prepared as heretofore described is freely soluble in chlorinated eucalyptol 1:2. The solutions should be prepared about as follows:

PREPARATION OF 7 $\frac{1}{2}$ PERCENT SOLUTION.

Measure off 150 Cc. of oil into a dry brown bottle, preferably one with a glass stopper. Add to this 11.5 Gm. powdered dichloramin T. This will dissolve, if shaken occasionally, in about an hour. It should *not* be warmed. This makes a 7 $\frac{1}{2}$ percent solution, and is used for all dressings subsequent to the first two or three applications. This solution should keep for at least two weeks. If this is used in an atomizer, as directed, it has been found that one filling of the usual atomizer reservoir will dress from 100 to 150 cases.

PREPARATION OF 20 PERCENT SOLUTION.

This solution should be made up about 25 Cc. at a time, using 5 Gm. of dichloramin T. to 25 Cc. of oil. It is most quickly accomplished by trituration and the solution should be kept in a brown bottle. This is applied to fresh wounds and for the first treatment of infected wounds and focal infections. It is most conveniently applied with an ordinary medicine dropper. This solution is good until a crop of fine crystals appears in it, which may happen in three days, although it may remain in good condition for ten or more days.

When using the solution in an atomizer, the reservoir of which is of colorless glass, the solution should be protected against light as light greatly accelerates the decomposition of dichloramin T. in solution. The following points should receive consideration in its clinical use:

1. Surgical asepsis, as perfect as possible, should be used at both the primary operation and subsequent dressings.
2. At the primary operation all wound surfaces should be covered and all crevices filled with the 20 percent solution. Subsequent dressings are made with the 7 $\frac{1}{2}$ percent solution.
3. Before the oil is applied the surfaces of the wound should be as dry as possible; free from blood and water.
4. Drainage should be avoided in all wounds closed by suture.
5. It has been suggested that with local infections, such as boils, carbuncles and abscesses, an incision be made somewhat earlier than usual and the 20 percent solution of dichloramin T. freely applied will very often sharply limit the progress of the infection.
6. This preparation is essentially non-irritating unless confined by unduly heavy or impervious dressings. If so confined, it may blister.

In conclusion I wish to acknowledge the coöperation of Doctors P. A. Lewis and W. E. Lee, and also the assistance of Miss Elizabeth Hill, in the chemical manipulations.

MAJOR D. A. COSSAR.

According to latest advice, Major D. A. Cossar, who was expected in this country, has been in Egypt; from there he will go to France. Mention was made in the JOURNAL, p. 922, October issue.

COMMERCIAL SECTION

THE PRECEPTOR—AN ASSET OR A LIABILITY?*

BY FRANKLIN M. APPLE.

From the definition of the word "preceptor" given by standard authorities, theoretically, there should be but one answer to this query: an affirmative one as an asset; but from customs in vogue in some establishments, branded drug stores, and from experiences had with employees from such shops, one is compelled, with reluctance, to decide that some preceptors are liabilities to those who have the misfortune to be in their employ.

The preceptor in the drug business should realize that he assumes a moral responsibility to his employees, who place a measure of faith in his integrity and business judgment when he takes them into his employ; hence he should exercise great caution that the embryo pharmacist, at the most impressionable time in his life, be directed along proper lines of action, which action upon the clerk's part will depend in large measure upon the customs that prevail in the establishment over which the proprietor has supreme command, as the rules of the store will automatically be indelibly impressed upon the mind of the faithful employee.

The advantages (or disadvantages) of the direction of the preceptor will be in direct proportion to the faithfulness of the employee, and we all know that the faithful employee is the only sort the good pharmacist is solicitous of employing.

When serving my apprenticeship, I was skeptical concerning rumors to the effect that in some few establishments very low wages were received by the tyro-pharmacists there employed; but after a quarter century's active service in the role of a pharmacist, and observing the varying value of various employees, I have no doubt as to the aforesaid rumors, and the great advantages enjoyed by those who had the good fortune to be under the direction and supervision of truly representative, responsible employers, who were mindful of the obligations to their employees. The advantages of such a line of action are not unfair or unbalanced ones, as far as the preceptor is concerned, for the the proverbial shortage of *good* help is one that does not annoy such a one; because there will be competition to enter his employ upon the part of intelligent employees, and other employers make appeals to him for positions for their wards when attending college, if located in a city where a college of pharmacy is operated.

As it will be necessary for the employee to carry out the processes of manufacture in a drug store that is properly conducted, it is self-evident that he will become familiar with such processes and facilities for manufacturing, which knowledge and practice will prove to be of lasting benefit to him as a clerk or as an employer.

It is said that the clerk of to-day is the proprietor of tomorrow, hence it can readily be seen that he stands to gain very materially by having been in the employ of a first-class pharmacist.

* Read before Section on Commercial Interests, A. Ph. A., Indianapolis meeting, 1917.

Reversely, it is advantageous to the employer to properly train his employees, for, if they become proprietors, they will assist in keeping up the standards of the business as a matter of custom or second nature, and he surely will feel the advantages that such customs will produce.

If the clerks have had desirable practices to follow when employed, they are not likely to want to follow less desirable ones when directing their places of business. They will be more prone to yearn for, and determine upon more pleasing and more comfortable conditions, which will lead to a far better state of affairs for all followers of the calling.

As a nation, we have been notorious as squanderers of our resources, showing but little regard for the affairs of to-morrow, but, with the advent of the unprecedented conditions that prevail to-day, it is very important that we take time to take account of stock, as it were, and plan with far more deliberation for the future than we have done in the past.

These are stirring and heart-rending times and each and every one should as a patriotic duty seriously consider how he can contribute to the welfare of the nation.

If careless financial methods have been followed, they should be discontinued immediately in self-defense to proprietor and clerk, for then the proprietor may be able to pay the clerk a better salary.

If slovenly practices have been followed, to the great detriment of the budding pharmacist, the proprietor should "wake up" or competition will eliminate him as an employer in the near future, for business is making very rapid strides along the lines of cleanliness and order.

If questionable business morals are the basis on which a drug store is conducted, the sooner a clerk severs his connection with the place the better it will be for him, as he cannot afford to run the risk of the evil effects of such environment.

If an employer does not prove to be what he morally obligates himself to be to the clerk—a preceptor or teacher—when he requests him to enter his employ, the drug clerk is being treated dishonestly and unfairly and should keep on the lookout for an employer who will faithfully carry out his part of the bargain made when hiring the novice.

As the majority of employers are close observers of the habits of their employees and realize their obligations to their worthy employees, it is incumbent upon the latter to prove their worthiness of confidence, and to instill into the minds of their masters the fact that it will not be a waste of time and effort upon the part of the preceptor to allot a certain portion of each day's time, if possible, to the improvement of their pupils, realizing that they will receive the benefit from such action by the improved service the employees can and will render to them.

I shall never forget the systematic course of study I was compelled to follow by my first employer in the drug business, and I feel certain that the habits then formed have been a lasting benefit to me; and I certainly recommend that all employers, if possible, demand that a certain course of reading and study be followed by their employees—particularly so by those just entering the drug business.

The ex-employees of some of our first-class drug stores are known as one of —'s boys, to which they allude with pride (and in many instances with great

profit), as they now appreciate the great opportunity it was to them to have been in the employ of such an employer.

As the brand trade-mark on some lines of manufacture inspires confidence in the goods bearing said marks, so the record of having served a satisfactory apprenticeship with proprietors of certain standing gives their ex-employees credentials that are of great benefit and value; hence the selection of a preceptor is a very momentous question for the young man entering pharmacy, and no hasty decision should be made upon this question, for the years of employment, while acquiring the degree of pharmacist, are but a small portion of the years the average clerk is connected with pharmacy.

Preceptors in pharmacy should realize the moral obligations they assume when employing clerks and should govern themselves accordingly. A full realization of those obligations will soon bring about a decided improvement in the quality of clerks; also establish the drug business upon a higher plane, with better financial rewards.

The opportunity is at hand. Will it be embraced?

Time only can give the answer; but may our generation not be compelled to be ashamed of its record, and deliberately throw away the golden opportunities that are at hand, for America has a new era awaiting for all alert, honorable, intelligent workers.

WOMEN IN PHARMACY TO-DAY.

BY R. A. KUEVER.

During the past three years European countries have witnessed the advent of women in fields hitherto controlled entirely by men. Inspired by patriotism, women offered their services in offices and factories where their help, at first a grateful addition, soon became a real necessity. With the duration of the war came multiplication of their tasks, until women's sphere included the most menial labor in mines and ammunition plants. They have borne their added responsibilities bravely and capably, sacrificing equally with the men folk in order to do their bit.

America will witness the same spectacle in the months to come—is witnessing it now in a small way. With us, however, it is different in that our women are afforded time to fit themselves for the work. The delay in placing our fighting forces in the field has enabled the majority of our men to continue their business undisturbed, or to substitute other men in their places. Women have shown an ardent desire to serve, and in many places girls are being employed to run elevators, page lobbies and perform similar tasks. But by far the greater number are serving by conserving and knitting—nor would I undervalue that service—but it must be materially increased and broadened as our man power decreases.

How can I best serve is the question confronting thousands of wide-awake American women, who are looking into the future welfare of our country. There is no field which offers greater opportunities than pharmacy. The demand for skilled pharmacists has never been as great, the salaries have never been so large,

and the number of available pharmacists never has been so small as it is at present—three very good reasons why more women should enter that field. Not only that, it is work for which women are admirably fitted. It does not require hard manual labor; it is clean, pleasant work, which any scientifically trained woman can do admirably and enjoy doing. Calls for registered pharmacists are constantly being received which cannot be filled because so many of the young men in that profession have entered some branch of our national service, and many more will be called to the colors this winter.

Our professional colleges feel the loss of the young men who have responded so promptly to their country's call, but their places are bound to be filled by women who realize in this their opportunity for service. The percentage of women in professional training is decidedly on the increase. At the State University of Iowa this year, seventeen percent of those registered in the College of Pharmacy are women. Another year it will be even greater, for women are quick to avail themselves of the double opportunity to earn their livelihood and at the same time do their bit.

WARNING AS TO CRUDE DRUGS.

Because of the discovery of as much as 25 percent of dog fennel in recent shipments of chamomile and of foreign materials in other crude drugs, the United States Department of Agriculture warns dealers and shippers to purchase only on explicit specifications. When imported, or shipped in interstate commerce, or when offered for sale in the Territories or the District of Columbia, crude drugs are adulterated within the meaning of the Food and Drugs Act if their strength or purity falls below the professed standard or quality under which they are sold. If the drug is sold under or by a name recognized in the United States Pharmacopoeia or National Formulary, it must conform with the requirements thereof as to strength, quality, and purity. If it differs therefrom, and the name recognized in the Pharmacopoeia or Formulary is retained, then the bottle, box, or other container must bear a plain statement of its own standard of strength, quality, or purity.

A WORD FROM THE TREASURER.

The A. Ph. A. fiscal year runs even with the calendar year. The annual payment for 1918 was due January 1. The bills were mailed to the members December 17, 1917. It is gratifying to state that at the present writing, January 5, the treasurer has received 725 payments for 1918. A prompt response from the other members will save the association the expense of mailing a second bill.

New Year's greetings to all from

HENRY L. WHELPLEY,

2342 Albion Place, St. Louis, Mo.

SECTION ON EDUCATION AND LEGISLATION

MINUTES OF THE SECOND SESSION OF THE SECTION ON EDUCATION AND LEGISLATION, A. PH. A., INDIANAPOLIS MEETING.

The second session of the Section on Education and Legislation was called to order at 9.30 A.M., Friday, August 31.

The first order of business was the reading of the report of the Committee on Regulations for the Transportation of Drugs by Mail. It was ordered that the report take the usual course. The report follows:

REPORT OF THE SPECIAL COMMITTEE ON REGULATIONS FOR TRANSPORTATION OF DRUGS BY MAIL.

At the time of this Committee's last previous report the Kern-Doremus bill was under consideration by Congress. It promised to be the most important step yet recorded in the movement to provide for the transmission of poisons through the mails. Toward the close of the same year, 1916, the Postmaster-General, with a somewhat similar object in mind, submitted some recommendations which were made part of the customary Postoffice Appropriation bill. But the two plans of relieving the situation were found to be quite different, and, in fact to differ so radically that a sharp controversy arose between the drug trade and the Postoffice Department over which form should be enacted.

The Kern-Doremus measure provided for the carrying through the mails of drugs of all kinds whether poisonous or not, with proper safeguards as to packing, etc., written into the law. Such legislation would be important and would give relief not alone to the drug trade but to all interested in the arts and sciences. This movement had the almost unanimous endorsement of the drug trade, one of the most important organizations backing it being the National Drug Trade Conference. The Postmaster-General in his recommendations sought to amend Section 217 of the Penal Code, which relates to the prohibition of all kinds of poisons, explosives, inflammable matter, etc., from transmission through the mails, so that he would have power without restriction to make regulations governing the carrying of drug poisons in the mails.

He would have the law permit the shipment of poisons, etc., between responsible parties, as between manufacturer and jobber, jobber and retailer, and the like. The Drug Trade Section of the New York Board of Trade and Transportation was also reported to be supporting this measure.

Neither bill has been passed. In the case of the Kern-Doremus bill, Congress adjourned by limitation March 4th before it was reached, and the present session is of course only concerned with war measures. As for the Postmaster-General's amendment to Section 217, it was thrown out of the Postoffice Appropriation bill on a point of order to the effect that it was new legislation on a general appropriation bill. There seems, therefore, to be no hope of change in the existing conditions before the next regular Congress.

Respectfully submitted,

B. L. MURRAY, *Chairman.*

The following papers were read, discussed and referred for publication:

"Some Ideas about the Teaching of Practical Pharmacy," by Zada M. Cooper. (See p. 1065, December 1917.)

"The U. S. P. IX and N. F. IV as Text Books for Pharmacognosy," by W. F. Gidley. (See p. 809, September issue.)

"Iowa's Prerequisite Law," by J. M. Lindly. (See p. 928, October issue.)

"What Compulsory Health Insurance Would Mean to the Druggist," by Harry B. Mason. (See p. 881, October issue.)

It was ordered that reprints be made of Mr. Mason's paper and sent to the legislative committee of each state association.¹

On motion of J. H. Beal and second of Wm. C. Anderson, the resolutions presented by Mr. Mason were also approved by vote of the Section. (See p. 890, October issue.)

¹ Reprints have been sent out as instructed.—*Editor.*

F. W. NITARDY: Prohibition confronts us in many states at this time. The Colorado Prohibition Law did not specifically include alcohol, but did by the inclusion of spirituous liquors or preparations that might be used as intoxicants.

We endeavored to have passed an alcohol bill, defining the status of alcohol and legalizing its use for strictly legitimate purposes, but were unsuccessful. Through the influence of the Denver Branch of the A. Ph. A., we succeeded in having the druggists of Colorado restrict the sale of alcohol to a form of bathing alcohol denatured to an extent that it could not be used internally; namely, by making a mixture of alcohol and water and tartar emetic and selling this as bathing alcohol.

We went about the work very carefully and tried the mixture out, and then asked for a joint meeting with the Denver County Medical Association, when we submitted the formula to them, and put up our arguments why we would like to have their approval of this particular formula for an alcohol for external use. After three joint meetings we succeeded in getting the unanimous approval of this association, and then we published the formula very widely. We wrote to all the state officials and the people that were behind the prohibition forces, giving it very wide publicity, and getting all the druggists behind it, and the result was that there was not any beverage alcohol sold in the State of Colorado after the dry law went into effect. The only alcohol sold was the so-called bathing alcohol.

Two years later we went before the legislature, and we had then placed ourselves sufficiently in the confidence of the prohibition forces so that we were able to pass our Alcohol Law. Experience had taught us a lesson or two that made our final alcohol law just a bit different from our original idea of it.

I have with me here the Alcohol Law of the State of Colorado which I want to offer to this Section for other states to follow, if they happen to have prohibition legislation that endangers the legal status of alcohol. We all know how important alcohol is to the drug business, and that we cannot afford to have its use and importation into the state so restricted that it can be only prescribed in four ounce quantities by a physician.

The particular part I want to offer to this Section is the two formulas that we use in our State Law. Section 4 of our law reads as follows:

SECTION 4 OF COLORADO ALCOHOL LAW.

It shall be lawful for licensed wholesale or retail druggists to purchase and sell alcohol denatured under either one of the two following formulae:

| | |
|-----------------------------------------|---------------------------------------|
| (1) Tartar Emetic, U. S. P | 1.00 Gm. (58 grains) |
| Solution of Formaldehyde, U. S. P | 2.60 mls ($1\frac{1}{2}$ fluidounce) |
| Distilled Water..... | 475.00 mls (48 fluidounces) |
| Alcohol..... | 650.00 mls (83 fluidounces) |

To make about..... 1,000.00 mls (1 gallon)

Dissolve the tartar emetic in the water, add the formaldehyde solution, then the alcohol and mix well. And to comply with the following test:

If 100 mls of bathing alcohol prepared in accordance with this formula be evaporated to dryness on a water bath and then heated in an air bath at 100° C. for fifteen minutes, or until all of the formaldehyde is dissipated, the residue obtained should respond to the test of identification given under Antimony and Potassium Tartrate in the U. S. P., and should require not less than 5 mls of tenth-normal Iodine V. S., when assayed according to the U. S. P. process, corresponding to not less than .083 Gm. of tartar emetic per 100 mls of bathing alcohol.

| | |
|-----------------------------------------|--------------------------------------|
| (2) Croton Oil, U. S. P..... | 1 mil (62 minims) |
| Ether..... | 19 mls ($2\frac{1}{2}$ fluidounces) |
| Solution of Formaldehyde, U. S. P | 4 mls ($1\frac{1}{2}$ fluidounce) |
| Alcohol, U. S. P | 976 mls (125 fluidounces) |

To make about 1,000 mls (1 gallon)

Dissolve the croton oil in the ether, then add the alcohol and formaldehyde and mix well. And to comply with the following test:

If 100 mls of bathing alcohol prepared in accordance with this formula be evaporated on a water bath until the alcohol and ether have been dissipated, the residue dissolved in about 10 mls of ether, filtered, the filtrate evaporated on a water bath until the odor of ether is no longer perceptible, the oily residue, after heating in an air bath at 100° C. for fifteen minutes, should weigh not less than .085 Gm. nor more than .100 Gm. and correspond to the tests of croton oil as given by the U. S. P.

Provided, that such denatured alcohol shall bear the following form of label when sold or offered for sale:—

BATHING ALCOHOL.

Formula No.—

FOR EXTERNAL USE ONLY.

POISONOUS IF TAKEN INTERNALLY.

Then our law permits the sale of the regular so-called denatured alcohol. I want to explain that in constructing these formulas we found by experience that the amount of water mentioned in formula No. 1 is necessary to hold in solution the amount of tartar emetic we have in the formula. We found that unless we could put that much tartar emetic in the preparation it was not of much use. We found people could drink it if less amount was present.

This formula for bathing alcohol has been used by every druggist in Colorado for two years or more, and we have had only one complaint that it was unfit, irritating or objectionable in any way for external use. The Federal Government has published about thirteen different formulas that can be used to denature alcohol. This alcohol may be sold without a U. S. Revenue license. The one complainant wanted one of the other formulas used. The druggist poured in a little oil into the same bathing alcohol, thinking that the objection was more imaginary than a real one, and this customer came back later on and commented on how much better this particular bottle of alcohol was, stating that none of the irritating effects she had noticed in the other was present.

One reason for being anxious to bring this before the Association is that in the August JOURNAL OF THE A. PH. A., p. 700, Dr. Otto Raubenheimer wrote an article mentioning this to some extent and stating that we were very much mistaken in the idea that we could sell an alcohol of this kind without a liquor license. It started up a little commotion two days before I left Denver. I took the trouble to go to the Revenue Office in Denver and made careful inquiries in regard to that, and I find that the statements in this article of the JOURNAL differ with their views. An alcohol of this kind can be sold by any one without the Federal liquor license, and some action should be taken at this meeting to correct the wrong impression that has been sent out through the article mentioned.

I want to further explain the presence of formaldehyde in both of these formulas. That is done so that this will comply with the federal regulation which exempts us from the tax. The U. S. Government permits thirteen different mixtures of alcohol and other things to be sold as a denatured form of alcohol without license, and one of those is a mixture of one part of formaldehyde and two hundred and fifty parts of alcohol, known as Formula No. 3; that mixture is considered sufficiently denatured so as to make it unfit for internal use. You probably will realize that one part of formaldehyde in two hundred and fifty parts of alcohol would not keep some persons from drinking it, and we found that to be true in Colorado.

THE CHAIRMAN: I believe that Mr. Nitardy's very able presentation of this topic will more than correct Mr. Raubenheimer's paper, so that I do not believe any action on the part of this body is necessary. Is there any discussion?

DISCUSSION.

C. M. WOODRUFF: Before the members of this Association act upon the expressed opinion of the Collector of Internal Revenue in Denver, or anywhere else, it should be confirmed by the Commissioner of Internal Revenue.

Now, I may be incorrect, but my opinion is that the Commissioner of Internal Revenue at Washington has very recently pointed out that it is unlawful for druggists, who have not paid a special tax applying to the sale of alcohol, to sell these special denatured alcohols that have been recently authorized. I am under that impression, though not certain. You get all kinds of opinions from collectors. I obtained one kind through our New York office from a New York collector and another kind from our Detroit office from a Detroit collector, and when I was not satisfied I got an opinion from the Commissioner of Internal Revenue at Washington.

Another suggestion, has any effort ever been made to have these formulas authorized by the Commissioner of Internal Revenue so as to save the expense of using tax-paying alcohol in making these bathing solutions? Now, in considering that you must bear in mind that in these recent special denaturing formulas the Commissioner has limited the privilege of producing these to several distilling plants having denaturing licenses, I think we had better go slow before we conclude that the tax is not required.

F. W. NITARDY: Mr. Chairman, may I answer Mr. Woodruff's question? I have with me Treasury Decision No. 1843, and Mr. Woodruff's first question will be answered by reading one sentence from this decision. Reading:

"If, however, the alcohol before sale is rendered by the apothecary unfit for beverage uses in accordance with any formula approved for the destruction of the identity of alcohol in scientific institutions and hospital departments (see Treasury Decision 1757) no tax liability will be incurred."

We have been selling in the State of Colorado without federal license for three years, this particular mixture, and have had no trouble with the Internal Revenue Department. The article in the JOURNAL started up a discussion in Denver and I went to the trouble to find out if there was anything later than this Treasury Department Decision on the subject, and was informed by the Internal Revenue Department that there was no later decision, and there had not been any other rulings on the subject.

The other question asked by Mr. Woodruff, whether tax-free alcohol could not be obtained for this purpose, is also something we took up in Colorado. I wrote to the Secretary of the Treasury in an effort to have something done along that line, but we were turned down.

W. C. ANDERSON: A question is raised here on which there is an entire difference of opinion. In fact, if this goes out before the druggists of this country there will be hundreds of them fined for violation of the law. In my opinion, Mr. Nitardy is wrong and Mr. Raubenheimer is right. This is of vital importance and I think we ought to have it settled.

I would like to ask Mr. Nitardy if he submitted any questions with reference to this tax and these formulas to the Internal Revenue Department at Washington.

F. W. NITARDY: We did. We submitted not only our formula, but our state law, to the Internal Revenue Department with the request that we be permitted to have tax-free alcohol used in preparing this, stating that it was being sold without a liquor license as evidence that it was not a liquor. We received some lengthy correspondence on the subject, showing the reason why it could be sold without a license, but that tax-free alcohol could not be used in the manufacture of it without amending the revenue laws of the country.

W. C. ANDERSON: The situation is really this: that a druggist cannot denature alcohol and sell it for bathing purposes by either the formula you have given or any of the formulas printed in that circular, according to the Commissioner's own assertion. This matter was taken up in the King's County Pharmaceutical Association some years ago and I sent that very decision you have there to the Commissioner asking him if retail druggists could denature their alcohol in conformity with that law and sell it without tax, and his answer was positively no, and that those formulas were intended for institutions such as hospitals, and so forth.

I find that inspectors of the Internal Revenue Department, even collectors, make vital mistakes. We had one of the collectors in New York State tell a druggist that unless he took out a license and paid the tax he could not keep alcohol on hand for making tinctures, which was not a fact; so your collector, while he may not prosecute anyone in Colorado for doing as you are doing, he is not substantiated by the statements made, and the regulations at Washington. I cannot give you the number, but there is a pamphlet that gives the regulations so far as denatured alcohol is concerned, and it states that denaturing of alcohol will not be allowed by the Government, and sale of that denatured alcohol by the person denaturing it is prohibited, except it be by a denaturing plant licensed by the Government and under its supervision. You cannot denature alcohol for making tincture of iodine and sell it, but we have manufacturing houses selling tincture of iodine to the druggists to-day. That becomes denatured alcohol, but that tincture of iodine has to be made in a denaturing plant licensed by the Government. If a doctor writes a prescription for the formula you have there the druggist can compound it without being subject to the tax. If a physician writes a prescription containing tartar emetic and those other ingredients, a druggist can compound it without being subject to the tax; but a druggist cannot put those ingredients in the alcohol himself and denature it and sell it over the counter without

being subject to the tax. That comes direct, as I say, from Washington, because we in New York State had considerable trouble over the same question and made a thorough investigation and got all the information from that particular source. I do not want the druggists of the country deceived on this proposition.

F. W. NITARDY: Mr. Chairman, I believe Dr. Anderson has several Treasury Decisions confused. There are two decisions that give this same set of thirteen formulas. One I have in my hand; the other I have not with me, because I thought it of no use for this argument. It designates the same thirteen formulas for the purpose of denaturing tax-free alcohol to be used by hospitals and scientific institutions. That is Treasury Decision No. 1757. That particular Treasury Decision uses tax-free alcohol, this is an entirely different proposition from the alcohol the druggist buys from his jobber.

All the claim that I am making is that the druggist can use tax-paid alcohol and denature it according to Government requirements and sell it without the retail liquor dealer's license. That explanation was given to me in the Internal Revenue Office and it is clear from the reading of this decision.

OREL JONES: I would like to back up Dr. Anderson. I have at home the written decision of the Commissioner saying these formulas can be used on prescriptions only and not by the retail druggists for general sale.

S. L. HILTON: The statement of the gentleman is correct. Further, I want to add that when you do sell that alcohol that is tax-paid and denatured by yourself, without the internal revenue retail liquor dealer's license, you assume also the burden in case that product is used for beverage purposes, you are then guilty and will be so handled by the federal authorities.

F. W. NITARDY: I would like to ask of these gentlemen who have different opinions on this subject, how the druggist is permitted to make tincture of iodine and sell it without a liquor license. It was stated that it was a denatured form of alcohol, so the druggist, according to your statements, has no right to make tincture of iodine and sell it.

W. C. ANDERSON: A druggist can make any tincture. He can manufacture anything in his place with alcohol without paying the tax, but he cannot make tincture of iodine and then claim, from the Government, a return of tax paid on that ethyl alcohol; a denaturing plant licensed by the Government to denature alcohol can make tincture of iodine from grain alcohol and iodine and get a return on the tax.

F. W. NITARDY: We do not ask for any return of revenue on the denatured alcohol we sell. I ask how it is that a druggist can sell tincture of iodine without a retail liquor dealer's license?

W. C. ANDERSON: Because he can sell any preparation.

F. W. NITARDY: In the form of a medical preparation, a liniment, and so forth? In what manner does that medicinal preparation, this formula I have read, differ from some other liniment containing alcohol that is intended for external use and is unfit for internal use?

W. C. ANDERSON: The difference is that the Government examines every preparation on the market to discover their alcoholic and their medicinal content. They examine U. S. P. and N. F. preparations. They are medicinal preparations, compounds, and so recognized. They do not base their decision on the amount of alcohol contained. It may contain three percent of alcohol or ninety-five percent, but they base their decision on the amount of medicinal ingredients in the preparation. If there is enough medicine to make it a medicinal compound and not liquor, they do not list it as liquor. It may only contain five percent of alcohol and be listed as a liquor and the person who sells it has to pay the tax.

F. W. NITARDY: According to that the burden of proof is with the Government. Until these formulas are listed as liquor they will go tax-free.

W. C. ANDERSON: The burden of proof is upon the person selling the preparation. Mr. Nitardy is taking an awful responsibility. I am asking if he will not consider this matter carefully and look into it fully before he allows his present conclusions to get out among the retail drug trade.¹

THE CHAIRMAN: We will now hear a report on the work of the Voluntary Conferences for the Drafting of Modern Laws Pertaining to Pharmacy, by Chairman F. H. Freericks. (To be printed.)

F. H. FREERICKS: Now, Mr. Chairman, if it is in order, I would move that the draft of these provisions be made a special order of business at the afternoon meeting.

THE CHAIRMAN: It is certainly in order.

F. H. FREERICKS: I would so move.

(Mr. Freerick's motion was duly seconded and carried.)

THE CHAIRMAN: Before we adjourn we have one more topic of business, that is, the nomination and election of officers. The Secretary will read the names of those who were nominated at the close of the Wednesday session.

¹ See p. 1007, November issue, also p. 1117, December issue.

THE SECRETARY: Chairman, C. B. Jordan; for Associates, R. A. Kuever, F. W. Nitardy and C. E. Mollet; for Secretary, W. F. Rudd.

W. J. TEETERS: I move that the nominations be closed and that these gentlemen be elected by acclamation.

(The motion was duly seconded and carried.)

THE CHAIRMAN: The meeting stands adjourned until two o'clock this afternoon.

JOINT SESSION OF THE SECTION ON EDUCATION AND LEGISLATION WITH THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES AND THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

The Joint Session of the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy and the Section on Education and Legislation of the American Pharmaceutical Association was called to order by President Rufus A. Lyman, of the American Conference of Pharmaceutical Faculties, Friday, August 31, at 2.00 P.M.

The first order of business was the report of the current meeting of the American Conference of Pharmaceutical Faculties, by Secretary W. J. Teeters, of Iowa. The report follows:

ABSTRACT OF THE MINUTES OF AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

The eighteenth annual meeting of the American Conference of Pharmaceutical Faculties was held in Indianapolis, at the Hotel Claypool, August 27 and 28, 1917.

The presidential address of Professor R. A. Lyman was so inclusive in scope and recommendations that all committee recommendations were, by request, to be considered in connection with it. The committee on the President's address consists of W. C. Anderson, of New York, C. E. Caspari, of Missouri, and C. A. Dye, of Ohio.

The following recommendations were approved by the Conference, or such action taken as indicated in this report.

Recommendation No. 1.—That the Conference appoint Dr. Edward Kremers, of the University of Wisconsin, a committee of one, to prepare a brief account of the lives and services of J. O. Schlotterbeck, W. C. Alpers, C. Lewis Diehl, and any others who may have died during the year, and that these accounts be printed in, and be considered a part of the records of the proceedings of the 18th meeting of the Conference, and that the Secretary of the Conference be instructed to notify the respective families of the action which has been taken. Adopted.

Recommendation No. 2.—That the Conference instruct the Secretary to take the proper steps before the next annual meeting in order that Article 1, of the Constitution, may be changed to read, "This body shall be known as the American Association of Schools of Pharmacy," and that the constitution and by-laws be modified in conformity with this change. Rejected.

Recommendation No. 3.—That the recommendation of the Executive Committee, with reference to committees, as indicated on pages 211 and 212, of the Seventeenth Proceedings, be considered not final, and that the following constitute the permanent standing committees of the Conference:

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|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| No. 1. Committee on Higher Educational Standards. | No. 6. Committee on Relations of Pharmacy Schools and Other Professional Schools. |
| No. 2. Committee on Faculties (Classification and Teaching Staff). | No. 7. Committee on Relations of the Colleges with the Boards. |
| No. 3. Committee on Curriculum and Teaching Methods. | No. 8. Committee on Joint Examination Questions. |
| No. 4. Committee on Activities of Students and Alumni. | No. 9. Committee on Research |
| No. 5. Committee on Uniform College Bulletin. | |

Recommendation No. 4.—That a four-year high school requirement become binding upon schools of the Conference, September 1, 1920.

This was amended by striking out September 1920, and substituting September 1, 1923, and adopted as amended.

Recommendation No. 5.—That it be the sense of the Conference that Mr. Fairchild could render the greatest service to pharmacy by offering the scholarship to a graduate pharmacy student, in order that he might pursue some research problem for one full school year, in the school of his choice; and further, that this scholarship be awarded on the basis of the applicant's scholastic training, his standing as an undergraduate pharmaceutical student and upon his fitness to do research. Approved and referred to joint session.

Recommendation No. 6.—That the University of Santo Tomas de Manila be asked to designate someone in this country to act as her official representative at the Conference meetings, in order that we may feel the personal touch of that worthy institution, and that that institution in return may feel in a more direct way the inspiration which comes to an institution as a result of contact with the Conference.

Recommendation No. 7.—That the Secretary of the Conference be instructed to write a letter, in the kindest terms, but in a language which cannot be misunderstood, calling attention to what membership in the Conference means, pointing out where certain members have been negligent, and mail such letter to the Dean or Chief Executive Officer of each one of the departments, schools or colleges of pharmacy, and also to the President of each institution of which these pharmacy schools are a part.

Recommendation No. 8.—That the Executive Committee be instructed to invite some educator of prominence, who is in sympathy with pharmaceutical ideas, amenable, to meet with and address the Conference upon some problem relative to pharmaceutical education. This was referred to the Executive Committee, with instructions to secure some noted educator for an address each year when possible to do so.

Recommendation No. 9.—That the Executive Committee be instructed to study the matter of organization of colleges of pharmacy in the various Conference schools, and wherever it is thought desirable on the part of the school concerned, to offer any suggestions and help which the Conference has at its command.

Recommendation No. 10.—That the Executive Committee be instructed to investigate the organization of schools, to determine if there are cases where two schools are paying but one membership fee and the same men are representing two schools maintaining different requirements, and that the Executive Committee report at the next annual meeting.

Recommendation No. 11.—That the Executive Committee be instructed to notify a certain Conference school (the name of which the President will give in executive session) that the placing of traveling representatives upon the road is not in keeping with the spirit of the Conference, and that such action will not be tolerated and that an explanation of this college's action must be presented at the next annual meeting. The recommendation was referred to the Executive Committee, with instruction to formulate a rule covering this matter, for later submission to the Conference.

Recommendation No. 12.—That the Executive Committee be directed to present this matter to the Carnegie Foundation, and if this Foundation refuses to take it up, to discover some other method of investigating and classifying so as to accomplish a similar result and to report at the next annual meeting.

Recommendation No. 13.—That your Committee on Relations of Colleges with Boards be instructed to express the above view as the sentiment of the Conference, and that this Committee, in conjunction with the proper committee of the Boards, be requested to devise or discover a plan which can be developed, that will render justice to all, and that progress in the matter be reported as early as possible. This was disposed of by a motion that a committee of the Conference, in conjunction with the proper committee of the Boards be requested to devise a plan that will render justice to all concerned in the matter of apprenticeship.

Recommendation No. 14.—That the Committee on Activities of Students and Alumni be directed to devise a plan for establishing an honorary scholarship fraternity in pharmacy and report the same at the next annual meeting. Approved.

Recommendation No. 15.—That it be the sense of the Conference that for the study of pharmacy we should require one year of college work after September 1, 1925, and two years of college work after September 1, 1930, and that this declaration be given wide circulation through the pharmaceutical and lay press and that a special notice of such action be sent to the president of each American university holding membership in the Conference.

Action on this subject was postponed until next year.

The officers elected for the coming year were as follows: *President*, Henry Kraemer, Ann Arbor; *Vice-President*, Charles E. Caspari, St. Louis; *Secretary and Treasurer*, T. J. Bradley, Boston; *Chairman Executive Committee*, J. A. Koch, Pittsburgh; *Members Executive Committee*, R. A. Lyman, Lincoln, and F. J. Wulling, Minneapolis; *Syllabus Committee*, A. Bolenbaugh, Richmond.

Respectfully submitted,

WILBER J. TEETERS, *Secretary*.

THE CHAIRMAN: The report is open for discussion and corrections, if there are any to be made. I think the report is correct.

The next order of business was the report on the Fairchild Scholarship which follows:

TO THE SECTION ON EDUCATION AND LEGISLATION OF THE A. PH. A., the AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES, AND THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY:

In the report of last year on the Fairchild Scholarship, the President of the American Pharmaceutical Association was named Chairman of that Committee and the other members are: the president of the American Conference of Pharmaceutical Faculties, the president of the National Association of Boards of Pharmacy, and the editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, thus while the individual members of the Committee may change, it is really a permanent committee.

After the last annual meeting, President Frederick J. Wulling suggested to the Committee that the editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION be named Chairman; this suggestion was favorably acted upon by all the members, with the exception of the editor, who did not vote. The latter consented to accept, provided it met the approval of Mr. Fairchild. President Wulling wrote to Mr. Fairchild and his response was favorable.

The requirements of the candidates for the Fairchild Scholarship were named as follows: That the candidate shall be a graduate from a four-year high school course, that he have four years' drug store experience and pass an examination on questions to be prepared by a committee appointed by the Fairchild Scholarship Committee and that the examination be conducted under the supervision of the dean of a school of pharmacy belonging to the American Conference of Pharmaceutical Faculties, the president of the State Board of the State in which the examination was held or these officials might select representatives for the conduct of the examinations. The successful candidates shall have a right to choose the school in which he or she desires to matriculate.

The examination questions relate to elementary chemistry, elementary materia medica, practical pharmacy and prescription reading, and elementary business knowledge. The general scheme was outlined largely according to the rules of the British Fairchild Scholarship.

The Committee decided that the requirements for four-year drug store experience should be changed to two years of such experience and the Chairman was instructed to ask Mr. Fairchild whether he would be willing to have such change made. He answered as follows:

"Yes! it is quite agreeable to me to have the four years' drug store experience changed to two years; but with respect to any section of the plan of your committee please do not regard any wishes of mine as against the majority of the committee.

"I am very glad that it looks now as if the work might progress so that the Scholarship can be made available this year."

The letter is given in full so that Mr. Fairchild's coöperative spirit and interest may be shown evidencing that he desires to aid in every way possible and in accord with the interested bodies.

The Committee therefore proceeded with the preparation of examination questions through the appointment of a Special Committee consisting of Prof. Henry Kraemer, Prof. Wilber J. Teeters, Mr. H. C. Christensen and Mr. John Culley. The questions were prepared and the day set for the examination of candidates, namely, June 25, 1917. While a number of candidates promised to appear, only one actually came up for examination. It should be stated that the time was rather inopportune, the announcement was too late for most school catalogs and during vacation season. In order to make the Scholarship available, if possible, this year, and impossible to award the Scholarship without competition, an adjourned meeting for holding examinations has been called for September 26. It is to be hoped that the Conference and the National Association of Boards of Pharmacy will make it possible to have a number of candidates at that time. We are certain that your interest and appreciation of Mr. Fairchild's gift will make the award possible.

As indicated, the plan of award was based on that of the British Fairchild Scholarship but it is clearly evident if this does not seem practicable in this country, Mr. Fairchild will gladly consent to changes that may be deemed necessary.

The following suggestions have been made:

That the Scholarship be awarded to one who has finished one year in a school of pharmacy belonging to the Conference and successfully passed the prescribed examination.

That instead of proficiency in the subjects now required, the qualifying subjects should be English, arithmetic, physics, physiology, high school chemistry, and botany.

That the qualification be determined, not by the knowledge that the candidate has graduated from a high school course, but by actual test in the subjects regardless of the preliminary training and education.

That the Scholarship be awarded by competitive examination of senior students for post-graduate work.

That instead of the Scholarship being awarded by competition to a candidate regardless of locality in the United States, for the purpose of the award the United States be divided into four sections, the Northeast, the Southeast, the Northwest and the Southwest, and that the award be made the first year to a student of one section, next year to one of another section, until each section has had the opportunity for the Scholarship, and continue the award in this rotation.

It will, of course, be remembered that Mr. Fairchild offered the Scholarship *and we should as nearly as possible conform to his ideas when he first proposed his generous gift*. However, from the correspondence with Mr. Fairchild, it will readily be discerned that he desires to serve the best interests of pharmacy. Your consideration of the matter will therefore be appreciated by the Committee and your report awaited with interest. This year we hope that you will aid in making it possible to award the Scholarship under the rules formulated.

Sincerely,

E. G. EBERLE, *Chairman*.

THE CHAIRMAN: The Chair is not certain as to the method of procedure. The report of the Conference of the meeting is before us. One recommendation was made by the President with reference to the Fairchild Scholarship, and now we are discussing this recommendation with the report of Mr. Eberle, Chairman of the Committee on the Fairchild Scholarship.

E. G. EBERLE: Nearly all of the letters I have received are favorable to the plan that the Scholarship be awarded to a second-year student instead of one who has not attended a school of pharmacy.

THE CHAIRMAN: A motion is in order to receive and refer the report of the Secretary of the Conference for Publication.

C. A. DYE: I make such a motion.

(The motion was seconded, put to a vote and carried.)

THE CHAIRMAN: Now, we will take up this special item for consideration.

ROBERT P. FISCHELIS: I understood the recommendation of the Conference of the Faculties was to refer this matter to Mr. Eberle, and that he was to make a recommendation.

E. G. EBERLE: It should be understood that the Fairchild Scholarship Committee is really not a committee of any one of these bodies, but constituted of members belonging to these organizations. Whatever action is taken can only be recommendatory, if you feel so disposed, and I will be glad to confer with Mr. Fairchild.

THE CHAIRMAN: The Conference approved the President's recommendation, which simply asks the Conference that this Scholarship should be awarded to a senior student of a college of pharmacy of the Conference; that it should be awarded upon the basis of the applicant's scholastic training in the course of work required while in college and his fitness to do research.

R. P. Fischelis moved the adoption of the President's recommendation.

FREDERICK J. WULLING: Does the recommendation state the second year, or the senior year?

THE CHAIRMAN: The senior student.

FREDERICK J. WULLING: That would be the graduating year.

THE CHAIRMAN: The motion was to the effect that this Joint Session go on record as favoring the award of the scholarship to senior students; the Joint Session goes on record as favorable to the report of the President of the Conference.

Motion seconded.

ABSTRACT OF DISCUSSION.

CASWELL A. MAYO: This Scholarship was founded at my request, and after long consultation with Mr. Fairchild. When I conferred with him on the subject, we hit upon the expediency of having the Scholarship open to everyone. While he is perfectly willing to abide by any suggestions made, I always accentuated the fact that such Scholarship might attract a more desirable class of men to pharmacy than formerly. That was the idea in all our discussions. The idea is that there are a good many young men whose plans are indefinite, who might by the offer of a scholarship be induced to enter pharmacy. That is the thought I had at least, and one in which Mr. Fairchild decidedly agreed, of offering the Scholarship to a young man who was not already a student of a school of pharmacy.

There may be good and substantial and sufficient reasons to change. The difficulty we have had this year with the Scholarship indicates that there may be some reasons for changing the method of procedure.

THE CHAIRMAN: It seems to be evident from Mr. Fairchild's letter that he is amenable to suggestions, and it is just a matter of how we will gain the most for pharmacy in the awarding of this Scholarship.

C. A. MAYO: That has been his attitude from the beginning.

F. E. STEWART: I have not heard any reference made to the recommendations made by the Conference that this Scholarship should be awarded to one who has already graduated from our two-year course.

THE CHAIRMAN: The motion is now before the house, that the Joint Body approve the recommendations of the President of the Conference. We are now talking to that motion.

E. F. KELLY: How would you make the examinations fit the curriculum of schools requiring more than two years for graduation?

EDWARD KREMERS: I believe that young men will be attracted to pharmacy, not so much from the fact that when they enter pharmacy they have no tuition fee to pay for the first year, as from the possibilities that develop in the future. If we can advance pharmacy, I am sure the better young men and women of this country will want to enter pharmacy.

Just a word with regard to the wording of the resolution. It seems to me it is a trifle unfortunate to say it is to be given to a senior student. That is a subject of dual interpretation.

It may be given to junior students, after completing the first-year course whereby they become seniors for the next year. If we want to stimulate graduate work, then we ought to have that specified. May I make an amendment that graduate be substituted?

R. P. FISCHER: I accept the amendment.

THE CHAIRMAN: The maker of the motion accepts the amendment.

FREDERICK J. WULLING: I understood it was the desire of the donor of the Scholarship that it should go to a young man who has not yet entered school. If it is deemed admissible that the Scholarship be awarded to a graduate, that, I think, would be a very happy solution of our difficulty, provided it meets with the approval of Mr. Fairchild. I have thought right along that we should do what Mr. Fairchild wants us to do in this matter.

CHARLES E. CASPARI: In view of Mr. Fairchild's statement that he preferred to have the Committee settle this rather than consult his wishes in the matter, and in fact, there is only one scholarship, there seems to me no doubt it would do far more good to award it to a graduate in pharmacy rather than to a man not a student in undergraduate work. If we had one scholarship for each college, or more, I would say, let it go to one who has not entered a school, but since we have only one, I think the greater amount of good would be gained by granting the same to some desirable student deserving of it; if any student, a graduate student, rather than an undergraduate. As a member of the Committee on the President's address, it is the recommendation I would make.

CASWELL A. MAYO: I know Mr. Fairchild's view sufficiently to know that he only wishes the Scholarship to be administered in the very best way. I might relate an experience that I personally had, but I do not want it in any way to influence the members. Before entering a school of pharmacy I was a clerk in a drug store at a small salary and was questioning myself as to whether I would remain in pharmacy, when I was awarded the Peter Williamson Scholarship. With this deep feeling of indebtedness to that donor, I took the matter of a like scholarship up with Mr. Fairchild.

H. C. CHRISTENSEN: Inasmuch as the National Association of Boards of Pharmacy took action on this matter only in a recommendatory way, and as I have not made a report on our meeting, I would like to state that the Association went on record as recommending that the Scholarship be awarded on the basis of the second-year work. We did not hear anything of the graduation feature, and it seemed from our previous experience that the idea of awarding the Scholarship simply on high school graduation, that there was not anything to base the competitive examination on.

I agree with what has been said here entirely, that the basis should be graduation. Then there would be something on which to base competitive examination for scholarship, and I believe it would have a tendency to bring about competitive work, and make these applicants look forward to progress in pharmacy. I heartily agree with this proposition.

FREDERICK J. WULLING: Whatever action we take is also the action of the Board, as well as the Conference and this Section of the A. Ph. A., that the candidates for the Scholarship should be graduates of Conference colleges.

THE CHAIRMAN: Yes, it is so stated. The only change is that in connection with senior and graduate. I may say that the scholarship is awarded by the Fairchild Committee, and this action is simply recommendatory. This Committee and Mr. Fairchild are seeking light as to the best way of awarding this Scholarship to do the most for American pharmacy, so this is simply a discussion of the proposition by these three bodies, and then the matter will be considered by the Committee and Mr. Fairchild.

All those in favor of the motion will signify by saying "Aye." Contrary "No." It is carried, and is a unanimous vote.

The next matter on the program will be the report of the Fourteenth Annual Meeting of the National Association of Boards of Pharmacy, by Mr. Christensen, of Chicago. This follows:

REPORT OF THE FOURTEENTH ANNUAL MEETING OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

The Fourteenth Annual Convention of the National Association of Boards of Pharmacy was called to order in the Assembly Hall of the Claypool Hotel, Indianapolis, Ind., by President Lawrence C. Lewis, at 10.15 A.M., Monday, August 27, 1917.

Roll-call showed twenty-seven states represented as follows: Alabama, Arkansas, Connecticut, Florida, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, New Jersey, New York, North Dakota, Oklahoma, Pennsylvania, Tennessee, Texas, Utah, Vermont, Virginia, Wisconsin. Total number of delegates and associate delegates present, fifty-two. The address of welcome by Burton Cassaday, of the Indiana Board of Pharmacy, was responded to by John Culley, of the Utah board.

President Lewis invited D. W. Ramsaur, of Florida, to take the chair, and then proceeded with his presidential address. After calling attention to general conditions in pharmacy prevailing throughout the country on account of the war, he announced with much feeling the death of A. C. Wilson, of Iowa, late member of the Executive Committee; he also reported the death, during the past year, of C. Lewis Diehl, Wm. C. Alpers, Martin I. Wilbert and others, who had labored hard in the past to place pharmacy on a higher plane.

He then cited some of the activities of the Committee of the A. Ph. A. and the boards in the matter of the Fairchild Scholarship and said he hoped that during the next year a more practical plan would be adopted with regard to the awarding of this Scholarship. It was suggested later in the meeting that the Scholarship be awarded for the last year's work in a school of pharmacy instead of the first as this year. This it was thought would not only be the means of bringing more candidates to apply for the scholarship, but would also enable the Committee to adopt a more practical plan of award, basing examination on the first year's work in a school of pharmacy as well as high school and practical work.

Other recommendations of the president were as follows:

That the secretary and the chairman of the Executive Committee of the Association be appointed as a Committee on Necrology to draft suitable resolutions, and that the "In Memoriam" page in the Annual Proceedings be continued.

That the dues and reciprocal blank fees remain the same as in the past year, so that the chairman of the Advisory Examination Committee may be enabled to visit as many states during examination periods as possible and furnish such suggestions and information as may lead to continued progress toward higher and more uniform standards for state board examinations.

The Committee on the President's Address not only approved of this, but suggested further that the members of the state boards should visit their neighboring states while holding examinations and thus by personal interview acquaint themselves and study the methods and practices in use.

That a committee of three, consisting of the president, secretary and chairman of the Executive Committee, confer with the Committee on Time and Place of the A. Ph. A. with a view of having our annual convention a week earlier in August. The reason for this was given that it would insure a larger attendance of board of pharmacy members. Most board members are actively engaged in business and many handle school text-books so that it is imperative that they be at their places of business several days before the first of September, so as to have this part of their business in shape for the opening of schools.

That state board members be as liberal as possible in construing the "one year resident" clause in cases of applicants for reciprocity where the applicant complies fully with other requirements of the N. A. B. P. for reciprocity.

That the Association go on record as endorsing the Edmonds Bill, known as H. R. 5531, introduced by Honorable G. W. Edmonds, Philadelphia, and drafted by the National Pharmaceutical Service Association.

That state boards adopt more uniform fees for reciprocal registration in the various states. It was pointed out that fees varied from five to twenty-five dollars. A uniform fee of fifteen dollars was recommended, unless this would conflict with state laws.

In accordance with action previously taken by the Executive Committee, it was recommended that the Secretary be instructed to make application for membership of the N. A. B. P. in the National Drug Trade Conference, and on adoption of the report of the Committee on the President's Address it was so ordered.

From reports made by committees of the Association, it is very evident that the past year has brought forth more good than any previous year since the Association was organized. The report of the chairman of the Advisory Examination Committee showed that as secretary and chairman of this Committee he visited fourteen states during the past year and that in all of these satisfactory progress was being made in examination work; also, four states, Colorado, Nevada, Pennsylvania and South Carolina, were added to the active membership list of the Association during the past year.

The following officers were elected: *President*, W. P. Porterfield, Fargo, N. D.; *First Vice-President*, J. A. Weeks, Ballinger, Texas; *Second Vice-President*, W. R. Jarrett, Oklahoma City; *Third Vice-President*, D. E. Haddon, Alta, Ia; *Secretary*, H. C. Christensen, Chicago; *Treasurer*, Charles H. Skinner, Windsor, Vt.; *Members of the Executive Committee*, John Culley, Ogden, Utah, and H. E. Purdy, Derby, Conn.

H. C. CHRISTENSEN, *Secretary*.

C. E. Mollett moved that the report be received and being seconded was on vote adopted:

CHAIRMAN R. A. LYMAN: President Stone was on the program for an address but he is absent so this finishes the business in which we are concerned as a joint body. I will now call upon Mr. Kuever, who will act as Chairman and finish the program.

CHAIRMAN R. A. KUEVER: We have two papers from the first session on Wednesday, and we will hear those first. They are: "The School of Pharmacy and the Profession," by C. F. Nelson, and "Graduate Instruction in Pharmacy in the United States," by Edward Kremers.

These were read, discussed and referred for publication. (See this issue.)

The next paper was by C. H. LaWall on "A Bad Spell, or Who Mixed the Letters." (See p. 1063, December issue.)

The following papers, owing to the absence of the authors, were read by title and referred for publication:

"Privately Owned Schools and Colleges of Pharmacy," by Edward Spease.

"Are Colleges of Pharmacy Devoting Sufficient Time to Prescription Laboratory Practice?" by A. W. Linton.

"The State Legislature," by W. H. Cousins.

The next order of business was the presentation of the report of the Committee on Drafting of a Model Pharmacy Law by Chairman F. H. Freericks.

(This report with abstract of discussions will be printed in a later issue.)

A motion was made by H. C. Christensen and seconded by C. E. Mollett that a rising vote of thanks be extended to this committee for its faithful work, and this was afterward amended, requesting the incoming President to reappoint the same committee and that it be empowered to continue the work. It was unanimously carried.

Chairman Freericks expressed the hope that the final report would be made at the next annual meeting of the Association.

The meeting of the Section on Education and Legislation was then adjourned.

REPORT OF THE COMMISSION ON PROPRIETARY MEDICINES OF
THE AMERICAN PHARMACEUTICAL ASSOCIATION,

1916-1917.*

TO THE COUNCIL AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The Commission on Proprietary Medicines submits for your consideration the following report of its activities for the year 1916-1917:

Since its last report the Commission has suffered the loss by death of two of its most valued and useful members, Mr. Martin I. Wilbert, of Washington, D. C., and Mr. Thos. F. Main, of New York City.

MARTIN I. WILBERT—THOMAS F. MAIN.

Mr. Wilbert was one of the best-known pharmacists in the United States, and one of the most conscientious members and ablest workers of the American Pharmaceutical Association.

He became a member of the Commission at the time of its creation, and during his remaining life gave close attention to the problems incident to the manufacture, advertising, sale and use of package medicines of a proprietary character; and worked faithfully with his fellow-members of the Commission to formulate and secure the adoption of principles designed to safeguard the public interest and to place the proprietary medicine industry upon a proper and acceptable basis.

He was an honest, earnest and continuous student of the reciprocal relations between pharmacy, medicine and the public, and devoted the utmost energies of his too short life to work for the common good.

Mr. Main was also one of the original members of the Commission and until the day of his death was constant in his efforts to contribute to the success of its work.

Mr. Main's many years of experience as manufacturer, wholesaler and retailer fitted him peculiarly for service on the Commission and to render unbiased judgments upon questions affecting the several divisions of the drug trade.

To all who knew him he was the embodiment of honor and integrity, and one whose broad-mindedness and gentleness of manner endeared him to those with whom he was brought in contact.

The surviving members of the Commission desire here to place on record their sense of loss and profound sorrow occasioned by the death of their two departed colleagues, whose virtues and eminent services they will ever hold in faithful remembrance.

Action of Associated Advertising Clubs with Respect to Medical Advertising.—By invitation, the Chairman of the Commission on Proprietary Medicines attended the mid-year conference of the National Vigilance Committee of the Associated Advertising Clubs of the World, held at Indianapolis, Ind., March 5, 1917, and presented a paper dealing with the general subject of medical advertising and with the work of this Commission.

Following a general discussion of the paper and of the general subject of medical advertising, the Vigilance Committee appointed a sub-committee to formulate standards for proprietary package medicines advertised to the general public, and invited the members of the Commission to meet with and take part in the deliberations of such sub-committee.

The Sub-Committee thus created met at the LaSalle Hotel, Chicago, March 27th, at which meeting the Commission on Proprietary Medicines was represented by the Chairman, who was the only member able to be present.

After a discussion covering almost an entire day, the Sub-Committee formulated a list of principles to be regarded as standards for proprietary package

* Presented at the Indianapolis meeting, 1917.

medicines advertised to the general public, and adopted a code of rules and regulations for the investigation of such medicines.

The report of this Sub-Committee was at a later date presented to the National Vigilance Committee of the Associated Advertising Clubs at its annual convention held in the city of St. Louis, June 4, 5 and 6, 1917, when the principles and regulations were completed and approved, and now constitute the code by which the National Vigilance Committee will judge the character of package medicines advertised in so far as it shall be called upon to pass judgment upon the same.

The standards and regulations as promulgated by the National Vigilance Committee are as follows:

STANDARDS FOR MEDICAL ADVERTISING.

There is a legitimate field for the advertising of ready-made package remedies intended for the domestic treatment of common ailments, providing the following requirements are met:

(1) *Appropriate Use.*—The advertised medicine must be appropriate for use in the particular affections for which it is recommended and must not unfavorably affect the course of the disease for which it is recommended.

(2) *Prescription Fakes, Concealment of Proprietary Character.*—The preparation must not be named or advertised in such a way as to conceal its proprietary character and lead the purchaser to believe that it is a simple chemical or vegetable drug ordinarily purchasable in small quantities instead of a proprietary mixture or substance.

(3) *Methods of Marketing.*—Ordinarily the preparation should be one which is regularly offered to the public through the usual trade channels, *i. e.*, through regular wholesale and retail dealers in ready-made medicines, and thus subject to inspection by the authorities charged with the enforcement of state food and drug laws.

(4) *Alcohol Content.*—If the preparation contains alcohol, it must be sufficiently medicated to prevent its use as an intoxicating beverage, and in addition to this requirement, the proportion of alcohol present must not be greater than is properly necessary to hold in solution in permanently active condition the essential constituents of the preparation, and to protect the preparation against freezing, fermentation, or other deleterious change.

(5) *Content of Habit-Forming Narcotic Drugs.*—If the preparation is one which is capable of being used internally, whether recommended for internal use or not, it must not contain cocaine, nor shall it contain opium or any of its alkaloids or their derivatives in greater proportion than those specified in Section Six of the Federal Law, commonly known as the Harrison Act, and it shall also contain other active drugs in such proportion that the use of the preparation will not be likely to create a drug habit, nor satisfy such a habit when previously existing.

(6) *Remedies for Children's Use.*—If intended for administration to infants or children, the preparation must not contain cocaine, or opium or its alkaloids, or their derivatives in any proportion whatever.

(7) *Activity of the Preparation, Cautions against Misuse.*—The preparation must be of such character that it will not be liable to endanger life or health when used in accordance with the accompanying instructions, and if the preparation is one which is liable to occasion injury when improperly used or when used to excess, the accompanying label and literature must bear instructions tending to guard against such improper or excessive use.

(8) *Immoral or Illegal Purposes.*—The preparation must not be intended for use as an abortifacient nor for use for any other immoral or illegal purpose, nor must it be advertised or recommended either directly or indirectly as an abortifacient or for any immoral or illegal purposes.

(9) *Incurable and Contagious Diseases.*—The preparation must not be advertised or recommended, directly or by inference, as a cure for diseases or conditions which are generally recognized as incurable by the simple administration of drugs, or for the cure of contagious diseases or those sufficiently acute to require treatment by a qualified medical attendant.

(10) *Conformity to the Federal Food and Drugs Act.*—Neither the label on the package nor any of the accompanying literature shall bear or contain any statement in conflict with the misbranding provisions of the Federal Food and Drugs Act.

(11) *Advertising Not Accompanying the Package.*—Advertising not accompanying the package shall conform substantially to the statements on the label, carton, or in the accompanying circulars as to the origin, composition or character of the preparation, or concerning its curative or remedial value.

OUTLINE OF A PLAN FOR THE INVESTIGATION OF PACKAGE MEDICINE ADVERTISING.

The National Vigilance Committee approves the following plan for the investigation of the advertising of proprietary package medicines to the public:

(1) The requirements for proprietary package remedies intended for direct sale to the general public approved by the Commission on Proprietary Medicines of the American Pharmaceutical Association, as modified by the Vigilance Committee, are hereby adopted as the requirements of this committee in so far as they may be applicable to the work of the committee, and in so far as they are consistent with the regulations herein contained *or which may hereafter be adopted by the Vigilance Committee.*

(2) In considering the claims of curative or medicinal value made for a proprietary medicine, the Vigilance Committee will not undertake to decide between the views of rival schools of medicine, or between groups of physicians which maintain antagonistic opinions as to the medicinal value of the important constituents of any such proprietary medicine.

(3) In view of the difficulty of demonstrating the curative value of drugs by absolute proof and of the wide difference of opinion maintained by the various schools of medicine respecting the curative or medicinal value of numerous drugs, the Vigilance Committee will confine itself in the main, to a consideration of the honesty and good faith of the claims which are made in the advertisements to be considered.

(4) Evidence offered to justify claims of remedial value must be of substantial character, or of such a character as would ordinarily appeal to men of good judgment and not personally interested in the results of the decision.

(5) Evidence as to the medicinal value of a preparation or of the drugs used therein shall be of the same kind and quality as would ordinarily be considered sufficient to justify the good faith of a physician in using the same drugs in the same affections as those for which the preparation is advertised.

(6) As admissible evidence within the meaning of Regulations 4 and 5, the Vigilance Committee will consider any or all of the following:

a. Either oral or sworn written statements as to the use by legally qualified practicing physicians of the drugs contained in such preparation in the treatment of the affections for which the preparation is advertised.

b. Either oral or sworn written statements of the maker or advertiser as to the truthfulness and good faith of the claims made for an advertised preparation, or of the names and addresses of persons who have used such preparation with satisfactory results.

c. Affidavits of persons who have used the advertised preparation for the purpose for which it is advertised; but every such affidavit shall be signed by at least one disinterested witness in addition to the officer before whom the affidavit is made, which witness shall also certify that the contents of the affidavit were read in the hearing of the affiant and that the latter assented.

d. The statements of medical journals having general circulation among medical practitioners representing any school of medicine as to the medical properties and uses of any preparation or of any drug or medicinal substance used as an ingredient of such preparation.

e. The statements of text-books or manuals of materia medica, therapeutics or practice of medicine, or other works of reference in common use by legally qualified physicians of any so-called school of medicine, as to the medicinal uses or value of the drugs contained in a preparation.

f. Any other testimony which the Vigilance Committee may deem competent evidence as to the medicinal value of the preparation, or as to the truthfulness and good faith of the advertised claims made therefor.

Any information as to the composition of a proprietary medicine which may be communicated to the Committee will be preserved in confidence by the Committee, if so requested by the party making the communication, provided such request is made before the information is submitted.

(7) In all matters of dispute between the advertiser and Vigilance Committee, the burden of proof shall be upon the advertiser to establish the truth of his contention to the satisfaction of the Committee.

(8) Within the discretion of the Vigilance Committee a written answer to any objection which may be made to any advertisement may be accepted, or the advertiser may be requested to appear in person or by representative for the presentation of evidence or argument.

(9) Copies of the requirements for advertised proprietary medicines adopted by the Vigilance Committee and of these regulations shall be furnished on request to any advertiser or proprietor of an advertised package remedy, and to any newspaper advertising association or other agency of publicity.

The importance of this action of the National Vigilance Committee can hardly be over-estimated. The Associated Advertising Clubs is probably the strongest existing influence connected with the advertising business, and its ability to investigate and expose fraudulent advertising schemes is constantly increasing.

The members of the National Vigilance Committee are practical men, with judgments matured by many years of experience and who are thoroughly imbued with the doctrine that truth in advertising is essential both to those who have wares to sell and to those who deal in advertising.

We may expect with confidence that the efforts of the Vigilance Committee will result in the gradual elimination of the advertisement of fraudulent or valueless package medicines from the columns of the public press and that they will also promote the more truthful advertisement of those which, though possessed of merit, are frequently extravagantly extolled.

Effect of the Harrison Act on the Sale of Package Remedies Containing Habit-Forming Narcotic Drugs.—As a part of its work during the past year the Commission has made an investigation of the effect of the Federal Anti-Narcotic Act, commonly known as the Harrison Law, upon the sale of habit-forming narcotic drugs and of package medicines containing them. Letters were addressed to members of the wholesale drug trade, distributed generally over the United States, asking for information as follows:

1. The extent of any observed increase or decrease in the sale of drugs covered by the Harrison Law, since its enactment.
2. The extent of any observed increase or decrease in the sale of non-proprietary preparations, such as paregoric, Godfrey's cordial, and Bateman's drops, exempted by Section Six of the Harrison Law.
3. The extent of any observed increase or decrease in the sale of proprietary package remedies containing the drugs covered by the Harrison law and exempted by Section Six of that law.

Replies were received from 102 wholesale drug firms, located in 37 states, from which the following data have been compiled:

The replies to Query No. 1 indicate conclusively that since the enactment of the Harrison law there has been a large decrease in the sale of habit-forming narcotic drugs covered by that act for the sale of which an official order blank or physician's prescription is required, the average of all the decreases reported in figures amounting to no less than 66.3 percent.

The answers to Query No. 2 indicate that there has been a very considerable increase in the sale of *non-proprietary* articles containing opium, such as paregoric and Bateman's drops, amounting to an average of 118 percent for the firms which give definite figures for their increased

sales. These increased sales, however, fall far short of replacing the decreased sales reported for the drugs included in Query No. 1.*

The answers to the query respecting increased or decreased sales of *proprietary medicines* containing narcotic drugs were agreeably surprising to the members of the Proprietary Commission. It had been assumed as a matter of course that the inability of drug addicts to procure their accustomed supplies of opium or its alkaloids would prompt them to purchase package remedies containing these drugs among their constituents. Such, however, does not seem to have been the case, as indicated by the reports of wholesale druggists.

Fifty wholesale druggists report that they have noted little or no change in the volume of sales of proprietary preparations containing narcotics, notwithstanding the very general increase in the volume of business in other drug lines.

Twenty-six firms report *decreases* in the sale of such preparations, which they estimate at figures ranging from 10 to 80 percent.

Thirteen firms, without naming any percentage of reduction, report that their sales of such proprietary articles have decreased or largely decreased.

Three report that the sale of such articles in the districts in which they mainly do business is practically non-existent.

Several firms report that they do not handle such preparations, and several other firms do not make any answer to the query.

Eight firms report some *increase* in the sale of proprietaries of this class, generally stated to be slight, or very slight, but in two cases estimated at 25 percent. These reported increases appear to have been in connection with only two preparations, which are said to include other narcotic drugs, such as alcohol or ether in addition to their opium content. These particular preparations will be again referred to in a later section of this report.

The firms reporting decreases in the sale of proprietary articles containing habit-forming drugs offer one or more of the following reasons in explanation:

1. That the general notoriety given to the subject of habit-forming drugs by the enactment of the Harrison Law has tended to make purchasers wary of preparations containing such drugs, and has also prompted retail pharmacists to advise their customers against the purchase of such preparations.

2. That several of the more objectionable preparations of this class, *i. e.*, those which contain narcotics in sufficient proportion to make their use desirable by addicts, have been entirely withdrawn from the market by their manufacturers.

3. That the quantities of habit-forming drugs contained in certain other proprietaries have been reduced to such an extent that their narcotic effect is negligible in comparison to the effects of the associated drugs, so that habitués not being able to obtain the desired effect from the combinations do not purchase them.

From the above it would appear that the sale of proprietary medicines containing habit-forming drugs does not at the present time constitute any serious menace to the continued efficiency of the Harrison Law, and that if any further federal legislation is needed with respect to habit-forming narcotic drugs it should rather be made to apply to the official preparations of the Pharmacopoeia and National Formulary, than to the usual non-official preparations of the market.

The Origin and Introduction of Package Remedies.—Acting on a suggestion of our lamented colleague, Mr. M. I. Wilbert, the Commission has this year made a preliminary study of the origin and introduction of the package remedies commonly known as "patent medicines."

It was Mr. Wilbert's belief that, contrary to general opinion, the drug trade has had but a minor part in the introduction of patent medicines to the public

* The answers to these two queries are dealt with more in detail in a separate paper presented by the Chairman to the National Drug Trade Conference at its last meeting in Washington, held in May of the present year.

attention, and that the major responsibility for the introduction of such remedies rests with the medical profession, which opinion seems to be in some measure borne out by the result of our investigations.

In accordance with Mr. Wilbert's suggestions, letters were addressed to about 250 makers of proprietary medicines scattered quite generally over the United States, presenting a series of questions concerning the points upon which information was desired. Each letter was accompanied by a stamped return envelope, and the persons to whom the questions were addressed were advised that information furnished would be used in a statistical way only, and that if given as "confidential" it would be so preserved. About 100 manufacturers responded with more or less completeness to our questions, and upon these responses, supplemented by personal correspondence when the information first given was not satisfactory or sufficiently definite, the following study has been based.

On a study of the letters it was found that many of the answers related to toilet articles or preparations which could not properly be regarded as remedial in character, and these, together with other answers which seemed to be evasive or indefinite in their terms, were rejected, after first attempting to secure more satisfactory information by further correspondence.

After these various eliminations were made there remained answers from 79 makers of proprietary remedies giving information respecting 317 package preparations, which seemed to be of such definiteness as to entitle them to serious consideration, and from a tabulation of these answers the following data have been compiled:

Of the 317 preparations reported upon, 187, or 58.99 percent, are reported as originating in the form of physicians' prescriptions, the information being accompanied by the names and addresses of the physicians whose prescriptions were used as the foundation of the medicines named.

Of the 187 remedies reported as originating as physicians' prescriptions, 97, or 30.59 percent of the whole number of preparations studied, were introduced and first sold in package form by the physicians who claimed to be their originators.

The remainder of the 317 remedies are reported to have originated in the following ways:

The formulas of 28 package remedies are admitted to have been adopted or "adapted" from standard medical or pharmaceutical literature, such as the Pharmacopoeia of the United States, the French Codex, the British Pharmaceutical Codex or the National Formulary.

The formulas of 73 preparations are claimed to have been devised by chemists or pharmaceutical chemists, some of whom admit their indebtedness to physicians' prescriptions or to medical or pharmaceutical literature, while others claim entire credit for the creation of the formulas reported upon.

The formulas of the remaining 29 preparations are reported as having come to the manufacturers in the form of recipes which have been long in the possession of certain persons or families, and highly prized because of their real or supposed efficacy in the treatment of certain ailments. In such cases all traces of the real origin of the formulas have usually been lost or forgotten. Some preparations of this class have been continuously on the market for periods ranging from fifty to eighty years or more.

Of the preceding it will be observed that there are three classes of cases in which the formulas are not attributed directly to physicians' prescriptions, namely, those adopted or adapted from medical or pharmaceutical literature, those claimed to have been devised by pharmacists or pharmaceutical chemists, and those the origin of which is unknown, or which came into the hands of their present

proprieters in the form of what are commonly known to the trade as "family recipes."

Persons familiar with the manner in which formulas are introduced into medical and pharmaceutical literature, and with the manner in which so-called family recipes originate, will recognize that they are but a very short distance removed from physicians' prescriptions, and also that those claimed to be devised by pharmaceutical chemists are very largely based upon physicians' prescriptions, either directly or upon printed formulas appearing in medical literature.

In studying the answers one is struck by the considerable number of names eminent in American Medicine as authors of text-books on materia medica or practice who have been responsible either openly or under cover, for the introduction of remedies of this class. One expedient sometimes resorted to in naming such medicines has been to call them by the first name of the originating physician. For example, if the physician's name was Dr. X. Y., the preparations were put on the market as Dr. X.'s remedies.

In some instances the physician's prescription has apparently been used without any knowledge or connivance on the part of the physician himself, but in numerous other cases the physician has given permission for the manufacture and sale of the preparation as a package remedy in return for a cash bonus or for a royalty on the medicine sold. In many cases where royalties were at first paid they have later been extinguished by the payment of a lump sum in cash or by the acceptance of a certain amount of stock in the manufacturing concern.

Another interesting fact brought out from the study of the letters is that of late years, and especially since the passage of the Food and Drugs Act of 1906, it has become increasingly common for manufacturers of package remedies to submit their formulas and literature to one or more physicians or pharmaceutical chemists for study and revision, and to make changes in the formula or the literature in accordance with the recommendations received.

An illustration of the adage that "Doctors will differ" is presented in one case where a manufacturer, desirous of availing himself of the best of authority, submitted the formula of his preparation and the accompanying literature to a committee of three physicians representing three different medical colleges. The formula was approved by all three of the physician experts who, however, recommended some changes in the claims made in the literature. These suggestions were adopted and incorporated on the label and in the literature and, about a year later, to his surprise, the proprietor was cited under the Food and Drugs Act for issuing a misbranded preparation, *i. e.*, for making claims in the literature which, in the opinion of the authorities at Washington, were false and misleading. The puzzled manufacturer inquires, "How in —— can a man know what to do when he gets the opinion of the best medical experts on his labels and is then arrested for selling a fraudulent medicine?"

One can understand the puzzlement of this manufacturer when he reads the general medical literature pertaining to the various articles of the materia medica. There are very few items of the materia medica that have not been extolled by therapeutists in medical journals or in the text-books which they have written for their students in far more laudatory terms than the average maker of a package remedy would dare claim for his preparation.

A question which suggests itself in this connection is, to what extent is the manufacturer of a proprietary medicine justified in relying upon the statements found in books generally regarded as standard authorities on materia medica and therapeutics when he composes his claims for his preparation? Should he be permitted to recommend his preparations with the same liberal terms of praise that the professor in a medical college is permitted to bestow upon the drugs used as ingredients of such preparations in his lectures to his students, or the writer in a medical journal or the author of a text-book addressed to his colleagues in the profession; or is he to be held to a higher and stricter accountability for his claims of therapeutic value?

Cases of Drug Addiction or Alcohol Habit, or of Injuries Resulting from the Use of Patent Medicines.—The resolutions providing for the creation of the Commission on Proprietary Medicines make it a part of the duty of the Commission to inquire whether and to what extent package medicines contain alcohol or habit-forming narcotic drugs in sufficient proportions to render them likely to create an alcohol or drug habit, or render them liable to cause injury in the hands of the laity.

As an introduction to this particular feature of its work, the Commission early in the year requested the editors of journals addressed to the drug trade within the United States to print the following announcement:

"TO MEMBERS OF THE DRUG TRADE."

"The Commission on Proprietary Medicines of the American Pharmaceutical Association is desirous of obtaining reliable information respecting injuries alleged to have been caused by the use of proprietary medicines, or respecting the alleged improper use of such preparations.

"The assistance of members of the drug trade toward the securing of definite information of the kinds indicated below will be greatly appreciated by the Commission:

"Accounts of specific cases of harmful results following the use of proprietary medicines.

"Accounts of specific cases of narcotic drug habit resulting from the use of proprietary medicines, or of the use of proprietary medicines for the satisfaction of a habit previously existing.

"Accounts of specific cases of the habitual use of proprietary medicines as substitutes for the usual alcoholic beverages.

"Information bearing upon the above should state facts and circumstances that are capable of verification."

The announcement was printed in practically every drug journal in the United States, many of whose editors were also kind enough to comment liberally upon the subject and to urge their readers to comply with the Commission's request.

The replies to our request for information have been few in number, indicating either that injuries from the use of package medicines are rare or that druggists are not willing to coöperate with the Commission by supplying such information as they may possess. To such as have responded with information the Commission hereby expresses its thanks.

One prominent Indiana pharmacist reports his personal knowledge of three opium addicts who have made use of a certain proprietary cholera and diarrhoea medicine as a substitute for morphine. This preparation, while the opium content is within the exemption of the Harrison Act, is stated to contain alcohol and ether in addition thereto, the combined narcotic effect being apparently sufficient to give the opium addict some measure of relief when he cannot obtain the stronger

drug. This same preparation has also been reported upon unfavorably by several of those answering inquiries relative to the effect of the Harrison Act, which are set forth in another section of this report. The Commission is at present in correspondence with the manufacturers of this proprietary, and will report the result of such correspondence at some future date.

The Commission has also received a printed pamphlet issued by a noted authority on the treatment of drug addiction, in which the statement is made that the author has knowledge of cases of drug addiction resulting from the use of proprietary medicines. The Chairman of the Commission addressed the author personally, requesting specific information as to the cases of drug addiction referred to for utilization in this report. The Chairman was disappointed to receive a reply from the author to the effect that this information was of a strictly confidential and professional nature and could not be imparted to the Commission.

Some partial information bearing on the subject has also been received through the courtesy of the City Chemist of one of our larger cities in which the health authorities are conducting a special campaign against valueless or dangerous proprietary remedies, based on information obtained by a canvass of physicians of the city as to the use of such medicines by their patients, or otherwise coming within their observation.

Unfortunately the information which the City Chemist could supply was of such a nature, or was of such an indefinite character, that it has a very limited usefulness for the purposes of this report.

One of the preparations complained of was a hair stain alleged to have occasioned dermatitis in the users, while two other preparations which were named are supplied directly to their patients by advertising physicians and are not obtainable through the regular drug trade, and therefore do not properly come within the scope of the work assigned to this Commission.

Of the complaints pertaining to preparations which can properly be regarded as coming within the category of patent medicines, the following are important:

Fourteen cases were cited by physicians where certain proprietary medicines were taken without benefit, or where the patient grew worse after taking the medicine.

Two cases were cited by physicians of the use of a proprietary medicine for one ailment when the patient was in fact suffering from a different ailment, and grew worse because of failure to receive early treatment for the affection from which he was suffering.

Two cases were cited of the death of infants resulting from the use of a proprietary medicine containing a narcotic drug.

One case was cited of the creation of a morphine habit by the taking of a proprietary dyspeptic remedy.

The names of the preparations complained of were given, but not the names of the persons who used them with such unfavorable results nor the names of the reporting physicians.

As the nature of the cases cited seemed to be right in line with the work of the Commission, an effort was made to obtain such definite information of the cases cited as would justify naming the remedies complained of in this report. Our correspondent, the City Chemist, was personally willing to comply with our request for more definite information, but found that the names of the patients who had received injury through the use of the preparations named, or who had

failed to receive benefit from their use, were held as official secrets and could not be imparted to the Commission.

Other leads which at first appeared promising on further investigation proved to be equally disappointing; that is, the persons claiming to possess such knowledge either revised their statements when asked to make them more definite, or claimed to possess their information in a confidential way, and were therefore unable to give the Commission any specific data by which independent investigation could be made.

As the Commission has not been able to verify any of the alleged cases of injury resulting from the use of proprietary remedies, it does not feel justified at present in reporting the names of the preparations concerning which complaints have been made.

The Commission intends to continue this particular part of its investigation during the coming year, and hopes to be successful in obtaining some accurate information upon the subject in time for its next report.

Other studies of special features of the matters assigned to the Commission for investigation have been initiated during the past year, or have been continued from former years, but are not sufficiently advanced to report upon at the present time. Some delays have been unavoidable owing to the much-regretted deaths of two of our most active and valuable workers, Messrs. Wilbert and Main, to whom the duty of making several special studies was entrusted. It is hoped that by the time of our next annual convention these subjects will be in better form for presentation to the Association.

Respectfully submitted,

J. H. BEAL, Chairman,
CHAS. CASPARI, JR.,
JOHN C. WALLACE,
W. H. COUSINS,
SAMUEL C. HENRY.

GRADUATE INSTRUCTION IN PHARMACY IN THE UNITED STATES.*

BY EDWARD KREMERS.

When in 1821 the "School" of the Philadelphia College of Pharmacy offered its first course of evening lectures to the apprentices of Philadelphia, the first step toward the realization of systematic instruction in pharmacy had been taken. No doubt, this early experiment in continuation work reflected a need that had been felt by those who had given the subject any thought whatever. In part, however, it must be looked upon as a counter movement to the proposed step toward pharmaceutical education contemplated by the Medical Faculty of the University of Pennsylvania. As an assertion of professional independence it was highly to be commended. Viewed from the point of view of Peter K. Lehman,

* Presented before joint session of Section on Education and Legislation, A. Ph. A., of the American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy, Indianapolis meeting, 1917.

who expressed his commercial ideas in the following words: "This won't do, the University has no right to be taking our boys away at noon to make them M.P.'s," it was equally to be regretted. It would be useless, however, to discuss now, almost a century after this memorable event, what course pharmaceutical education in this country might have followed had a great university taken the initiative instead of leaving this important first step to men who saw in their apprentices, not so much the future pharmacists, as means to an immediate end.

For many a decade the road of the more ideally inclined members of the newly organized colleges was not an easy one. When, in 1789, the French apothecaries changed their organization from that of a guild of apothecaries to that of a college of pharmacy, they thereby declared to the French people that they wished to be regarded as a body of professional men and no longer as a guild of trades people. In this, their decision, they received the approval of their king. When the Philadelphia druggists in 1821 organized first as a College of Apothecaries—the name being changed very soon to that of College of Pharmacy—they likewise declared to the new world that they desired not only their independence of medicine, but that they were willing to assume the educational responsibilities of a profession. How lightly this obligation was taken by most of the members becomes apparent from the long list of those who dropped by the way as soon as the efforts of the medical faculty had been frustrated, and from the short list of names of those who were determined to strive toward the goal.

The beginnings were modest indeed. A single course of evening lectures by several medical men was all that was attempted. Pharmacy had declared its professional independence of medicine, but it had to call upon the older sister profession for its teachers. If the difficulties in Philadelphia were great, in other eastern cities, where local colleges were incorporated, the attempts either failed in large part, or, as was the case in Boston, no serious attempt at instruction was made at all for a number of decades. No wonder that the endeavor to secure educational coöperation in the first Conference of Colleges of Pharmacy did not outlast a decade.

If, in 1821, the somewhat grandiose attempt to initiate pharmaceutical instruction at the University of Pennsylvania met with failure, the small beginnings made by the University of Michigan in the sixties were more successful and gradually led to the movement, now all but universal, of pharmaceutical education by the state. Great as were the sacrifices made by such men as Squibb and others who gave not only their time and energy, but their money as well, the effort of the individual could not equal the effort of the state demanded by its druggists and supported by the entire citizenship of tax payers.

Whereas the evening courses at Philadelphia and elsewhere were of the type of the German *Fortbildungsanstalten*, after which our quite recent continuation schools are modeled, Michigan demanded the entire time and attention of her pharmacy students and made laboratory instruction the most prominent feature of the curriculum. Though Michigan was not admitted to the first Conference, yet her educational system prevailed, whereas the Conference was broken up. State university after state university has entered the field of pharmaceutical education with laboratory instruction as its backbone, and college after college has

slowly, but with resolve, added, first one modest laboratory course, then another, until laboratory instruction has become firmly established in all of them.

When the state universities entered the field of pharmaceutical instruction, they did not place the pharmacy student on a par with the regular students of their colleges. The entrance requirements were of a lower order, the time required for the completion of the course was shorter by half and even more than the conventional quadrennium. It is true the older colleges of pharmacy had no educational entrance requirements whatever, and even when the evening work was gradually displaced by day work, the actual time required was much less than that required by the universities. However, the prevalent university standards of pharmaceutical education suffered by more direct comparison.

The third step, *viz.*, the one to offer to the American student of pharmacy a course on a par with the conventional A.B. course of our colleges and universities was taken in 1892. It was received with much ridicule by the professors of the older colleges and did not even receive the condemnation of faint praise by the university teacher who had taken the very important step of placing pharmaceutical instruction on a thorough laboratory basis. However, it persisted, though in but a small way. Intended primarily as an ideal, it was soon found practical. More than ten years ago a university president referred to it as the only course to which every prospective pharmacist should aspire; a college dean has more recently heralded it as the salvation of pharmaceutical education in this country.

Thus was laid the foundation for graduate, not post-graduate work, in pharmacy. The subject of post-graduate study may be an important one, but it is not the topic of this paper. By graduate study is meant that type of educational work which is recognized as such by both the Association of American Universities and the Association of State Universities. Just as the quadrennium of the college rests on the four years of high school or academy, so the triennium of graduate study is based on the quadrennium of the college. As the work of the college implies something more than work done after the high school has been absolved, namely, study of a higher type, so graduate work implies something more by far than a continuation of study on an undergraduate plane after the coveted bachelor's degree has been received. Graduate study stands for work of the highest order given in course by the highest institutions of learning in the country.

Such work could not develop over night. It is not sufficient to map out a three years' course of study on paper. Just as the old colleges, when they inaugurated the evening courses for their schools, found that they could not supply the instructors from their own ranks for the modest courses of lectures, so the undergraduate college, not only in pharmacy, but in all lines of human endeavor, found that teachers for graduate study had first to be trained. This training was had—again in almost all lines—mostly at European universities. As France gave American pharmacy the college idea, *i. e.*, the closed corporation of the masters of the profession; as England gave us the idea of the classical college; so Germany gave us the idea of professional education in all branches and grades by the state. Moreover, she gave us the highest type of education, that which we in this country choose to designate graduate study. Hence it was in Europe, and more particularly in Germany, that not a few of our scientists received at least the final touches

of their higher education. Pharmacy constituted no exception to the rule. It is needless to state that just as not a few old-time self-made druggists were also good pharmacists, so individual teachers of pharmacy were imbued with the spirit of research, the basis of the graduate teachers' instruction, without crossing the Atlantic. Foreign journals and other publications kept alive the spark which their own individuality had kindled within them.

It is significant that the origin of graduate pharmaceutical instruction had its beginnings in the collateral sciences rather than in pharmacy proper. To anyone who has followed the trend of pharmaceutical education in this country this becomes readily apparent; and, in the light of the historical development of pharmaceutical education, it is easily understood.

Now, what should constitute graduate instruction in pharmacy?

When your speaker matriculated in the Philosophical Faculty of the University at Bonn, he was requested to inscribe his name in the Album of that faculty and the dean thereof extended to him the right hand of fellowship. The significance of these symbolic acts is this, that the student of the graduate faculty is regarded as the junior associate of the professor. The relation is no longer that of teacher and pupil, but of joint seekers after the truth, the professor being the senior, the student the junior member of this partnership. It is that of master and disciple, such as obtained in Aristotle's academy; not that of master and apprentice, a relation that obtains in the trades. It is this relationship that is characteristic of graduate work as contrasted with that of undergraduate study; though it may be necessary to emphasize that there are no hard and fast lines in study any more than in nature.

The relationship, however, is not likely to be that of one disciple to one master teacher; it is not that of a Mark Hopkins at one end of the log and a student at the other end thereof. The best opportunities for graduate work are not even found in the isolated college, but in the *universitas litterarum* with its diversified interests the aggregate of which creates the graduate atmosphere. It is the seeking of truth along many lines that stimulates the seeker of truth along the one line of endeavor to which the human being is of necessity largely restricted.

Referring primarily to undergraduate instruction, the late President Bascom, in "Things learned by living," makes the following statement: "There seem to me to be four primary qualities in good instruction, the power to impart information, the power to guide the pupil in his acquisition, the power to awaken the mind to a love and mastery of knowledge, and the power to disclose the essential unity and composite scope of truth. The professional necessity sinks from the first to the last, the personal inspiration rises from the beginning to the end. The lower excellence can hardly be secured without some measure of the higher, and the higher ceases to be permanently fruitful without a large measure of the lower."

Add to these four qualities the power to guide the student in the search for truth, also a stimulus to create an abiding love for the search after truth, and you will have essentially what is necessary to conduct graduate work.

Inasmuch as I am making these statements to a body of professional men, permit me to point out what, to me at least, has always appeared to be a fundamental error in the attitude of men of so-called pure science toward those in applied science. Just as Bascom is mistaken in supposing that teachers of the pro-

fessions must lose out in the four "primary qualities" of good undergraduate instruction as you pass step by step from the power to impart information to the power to disclose the essential unity of truth, just so many teachers of graduate students frequently have the erroneous idea that men of pure science only are concerned with the advancement of truth, and that those of applied science are but parasites who utilize the new truths discovered by their colleagues and apply them to practical or even selfish ends.

There never have been, and never will be, any hard and fast lines between pure and applied science. The investigator of truth for its own sake knows well that from every grain of truth there will ultimately develop a veritable harvest of practical application. While he may be satisfied frequently, because he is aware of his limitations, with the mere discovery and statement of a new truth, he is constantly stimulated by this knowledge. The fact that the applied scientist, also because conscious of his limitations, is so often content with the mere application of knowledge discovered by others, is no reason why this practice should be laid down as a dogma that differentiates arbitrarily between the two types of investigators. As a matter of fact modern research, in both the pure and applied camps, is giving the lie more and more to such erroneous fundamental conceptions. If arrogance has erred so frequently in one camp, false pride has erred equally in the other.

So much for the men and the spirit that should govern them. Permit me to emphasize once more that the graduate faculty does not consist of professors alone, but of professors and students. The stimulus of the young searcher after truth is often regarded as being as essential to the teacher, as the guidance of the latter is to the former.

Finally, just a brief word as to equipment. The fallacy of the trite saying of the late President Garfield, a graduate of Williams and an admirer of its famous president, that an ideal college consisted of a Dr. Hopkins at one end of a log and of a student at the other, has been pointed out by another graduate of Williams who was unquestionably more competent to judge and who regarded such catchy snatches of rhetoric as adulation. The time when a Berzelius could be a mighty guide in research to one or two students at a time in his laboratory kitchen, the use of which he had to contend constantly with his cook, is largely a thing of the past; as is also the time when a Scheele could make discoveries in his little apothecary shop laboratory at Koeping, discoveries that surprised the world then and surprise it even more to-day as we appreciate fully the significance of the results accomplished by this worker of miracles; or even the time of the more pretentious facilities of a Sertuerner who discovered the basic properties of morphine, a discovery of which we celebrate the hundredth anniversary this year.

Modern research requires money, more money, and yet more money to provide the necessary facilities. If we but consider the millions spent for agricultural research in this country, if we think of the vast sums with which medical research at the twenty-six research institutes of this country is endowed, if we reflect that a modern "*Farbenfabrik*" will allow not one but many Ph.D.'s to work year in and year out for the discovery of a new remedy, pharmacists might well lose heart and give up the idea of ever accomplishing anything worth while. Though it be true that we may scarcely hope to see another Scheele arise in modern pharmacy,

or even another Sertuerner; yet, with the right spirit, pharmacists in this country need not lose all hope.

Having already related the experience of my matriculation at the University of Bonn, allow me in closing to refer to another experience of the last day spent in Goettingen. The statue of Friederich Woehler was being unveiled before one of the academic buildings; and the four faculties, students as well as professors, were assembled to do honor to the memory of the discoverer of the truth that the substances of animal and vegetable organisms can be produced without the intervention of the life process. It was the venerable Hofmann, the author of so many excellent biographies, who delivered the address. Thinking of the campus with its essentially undergraduate atmosphere, of the laboratory with meager equipment even for undergraduate work that was awaiting him, the American student, who had received so much stimulus from his teachers at two German universities, received the greatest stimulus on that last day when the venerable Berlin professor, in pointing to the difference that existed in the equipment of the new organic laboratory in which the American had been privileged to work for two semesters, and the meager facilities that had surrounded Woehler when he made his remarkable discoveries, said: "*Es kommt nicht auf den Kaefig an. Die Frage ist ob der Vogel der drinnen sitzt singen kann.*" It matters little whether the cage is of wood or gold, the important question is whether the bird in the cage can sing.

THE SCHOOL OF PHARMACY AND THE PROFESSION.*

BY C. FERDINAND NELSON.

It needs scarcely be emphasized that we are living in an age of extreme specialization. A thousand happenings, large and small, significant and trivial, force the conclusion home to us daily. On every side of us, in every walk and avenue of life, wheresoever we chance to turn this minute dissection of things is constantly evident. The division of the world's labor has become tremendously complex. Where but a few years ago one vocation existed ten may exist to-day. The practice of medicine is no longer a single profession, it is rather a dozen separate callings. The engineer is no longer master of his field, but picks out one small corner of it and here does his bit. One lawyer masters criminal statutes, another the law of corporations, a third constitutional or international law. This dentist pulls teeth, another fills them. Specialization rules the day and us. We are its servants whether we will or no, and wherever it leads us we must follow.

The advances in every line of endeavor that have come as a direct result of this concentration have been many and important. It will, however, not serve our purpose to discuss these here except to mention the tremendous impetus that has been given to organized training, to the importance of college and university work in the last decade. The business man, the professional man, the artisan, have all found out that they must be trained rapidly and systematically if they would compete successfully.

* Presented before the joint session of the Section on Education and Legislation, A. Ph. A., the American Conference of Pharmaceutical Faculties, and the National Association of Boards of Pharmacy, Indianapolis meeting, 1917.

And so of sheer necessity we find ourselves living in an age of extreme educational activity. The school has become universal. Orderly and efficient accumulation and dissemination of knowledge has become imperative. Every state has its large university; there are colleges in the land by the hundreds. Schools of medicine, law, pharmacy, engineering, dentistry, agriculture, forestry, mining, and finance are found in every state of the Union. We go to school to learn philanthropy and social science, how to nurse, how to drive an automobile, and how to play golf. Surely the classroom and laboratory are important factors in modern life.

In the professions, too, the college has become absolutely necessary. No one can become a doctor to-day who has not received a college training. A great many of our engineers and lawyers are college men. In pharmacy the state boards have awakened to the necessity of preliminary study in a school of pharmacy and before long we may well hope to see every young man or woman that enters a drug store equipped with the superior advantages which systematic training gives.

I have dwelt at some length on the point of the importance of the school in modern life because in pharmacy we have been slower to recognize this fact than in any of the other professions. Whether the cause for this lack is to be found in the fact that we have specialized less, and this is certainly true in a professional sense, is, of course, hard to determine. Certain it is that we have rebelled vigorously at each new required educational advance and there has been genuine fear in many quarters that if educational requirements kept on going forward apace, the drug market would soon be entirely depleted of men. We need more than ever to-day to reap the advantages of organized information, to encourage, support, and endow our existing schools so that they may be able to do more and more for the cause of Pharmacy and for the young men that are to enter the calling.

If the college is an important institution in the life of a profession, as we believe it is, we have a right to demand important things from it and on certain points at least we should expect leadership to come from this source. Many pharmacists have in the past wrongfully assumed that the college existed only to supply them with clerks. Were this the only function of a college of pharmacy, the profession would soon be in a sorry plight. On constructive matters, legal or professional, their advice has not been sought enough. This point the profession must sooner or later come to recognize and correct.

But what, we may ask, should the modern college of pharmacy do for the profession of pharmacy? We are all agreed that its first duty is to prepare men to practice retail pharmacy; a second function is to train men to fill positions as pharmaceutical chemists and to supply men for the wholesaling of drugs and chemicals; a third to do research work to advance our knowledge of the uses of drugs and medicines; a fourth to train teachers and investigators so that pharmacy may enlarge the scope of its activities. These are important functions and if done well would seem to be enough. And yet there is another exceedingly important phase of pharmaceutical activity to which we must give a great deal of attention in the immediate future, which the college must take upon itself to solve or at least do all in its power to help the conscientious lover of pharmacy to unravel. It is this problem to which I desire to invite your attention for a few moments.

The one conspicuous and outstanding fact in the retail practice of pharmacy to-day is the disproportion between the commercial and professional activity of the pharmacist. A great deal has been written decrying commercialism and urging us back to the prescription counter. Much has been said about the necessity for the pharmacist being the manufacturer of the drugs he dispenses, but we have entirely forgotten the question of the evolution, or thought of urging the enlargement of the scope and ideals of the profession. Pharmacy is to-day, as it was in its infancy, the science and art of preparing drugs and filling prescriptions. We must not wonder that we have floundered in a sea of commercialism with a barque so small and inadequate and outworn. The wonder is that we have survived at all. The introduction of machinery and the establishment of large manufacturing houses have forever taken from the retail pharmacist the hope of being a successful manufacturer of his own preparations. We must meet this fact squarely and recognize it. It is as useless for the retail pharmacist to compete with the manufacturer in this respect as it was years ago for the trade unions to protest against the introduction of machinery in the trades. The machine conquered, and so will wholesale manufacture of drugs. We should drop this as an ideal for retail pharmacy, but as we drop it put something in its place.

And what has happened to our prescription departments, of which we have been so proud, and upon which so much care has been lavished in the past? A few flourish, some exist, many are entirely wiped out. The average pharmacist to-day despairs of making a living on the strength of his prescription sales. And well he may if he expects only to fill the old style of prescriptions; *i. e.*, drugs, drugs for every ailment known to man. The medical profession has passed this point and we must expect the number of prescriptions written to decrease. But what have we put in its place, a professional void, to be occupied too soon by another side line? Is it not an indisputable fact that the two vital professional elements in our calling upon which in the past we have sought to stand have slipped, or are rapidly slipping, from our grasp? Is it not equally true that we have not sought to substitute anything for that which we were losing?

Pharmacy must revise its ideals and define anew and in broader terms its scope and purposes. The mortar and pestle are not adequate insignia for twentieth-century pharmacy. They serve modern life too poorly, touch it at too few angles, have become of secondary rather than primary importance. And the same holds only too true for the retailing of drugs and chemicals.

This point of view need not shock even the most conservative among us. We have but to look at our sister profession of medicine to find that time and time again it has emerged from out of the hard shell of its former practices and into a newer and better one, repeatedly has it re-defined its scope and broadened its usefulness. And yet it has not changed its name. The physician is no physicist and yet he has insisted upon mastering the technique of the X-ray machine. He claims to be no electrician and yet he will tell you much about the faradic current and the electrocardiogram. He is no engineer and yet he raises his voice on questions of sanitary problems. These things could by no possible stretch of the imagination have entered into a definition of the practice of medicine half a century ago.

May it not be that what we need more than anything else to infuse and rejuvenate the profession which we all think so much of, for to one who has been

behind the counter for years there is a real charm in pharmacy that only he knows, may it not be that what we need is to include in the definition of pharmacy something besides that which we have heretofore always included? Can we not fill the older now empty or nearly empty spaces with something besides commercial side lines? To find this out is a fifth duty of our schools of pharmacy. They should systematically study the problem and we should all help them solve it.

It can be shown with reasonable certainty that pharmacy and medicine are essentially complementary professions and that in the large their business is to solve the problems of health and disease. Anything included under these problems may, therefore, belong legitimately to pharmacy or medicine. Why we should only sell tablets and make tinctures and leave all the rest to medicine is not at all clear. The physician needs our aid along far more important lines and so does the public. Is there any logical reason, then, why we should continue as we do?

Medicine concerns itself chiefly with physical diagnosis and treatment of disease. Prophylaxis is also becoming more and more of its concern. I would like to define pharmacy as the science and art concerning itself with all of the remaining aspects of the two problems previously mentioned. This would give us professional responsibility which we need so badly, and yet not take us too far afield from pharmacy as we now know it. Particularly in things chemical are we fitted for this larger work. Our heritage is chemistry. Much that to-day is important in chemistry was brought to light in the old apothecary shop. We should undertake all of the chemical and even bacteriological work now included under medical laboratory diagnosis. Already we see the signs of the medical laboratory coming to do this work for each community. The pharmacist should anticipate this work because it really belongs to him to do. The municipal and sanitary laboratory as far as health problems are concerned should be in his hands. To the mortar and pestle should be added the test tube and Petri dish. With this combination we may reasonably hold our own—professionally do our bit and do it well. Without anything but prescriptions and patent medicines to sell to the public we cannot hope to survive. We shall drift ever farther into pure commercialism and with it will disappear every vestige of pharmacy as a distinct calling.

ARSENIC INSECTICIDE INDUSTRY PLACED UNDER THE LICENSE SYSTEM.

The Food Administration has issued the following:

With the idea of further conserving the Nation's food supply by protecting it from insect ravages, President Wilson, in a proclamation dated November 15, has placed the arsenic industry of the United States under direction of the Food Administration. The President's action comes in answer to a threatened shortage in the supply of arsenical insecticides, which are the farmer's chief protection for his crops against the onslaught of "biting insects."

All those engaged in the business of importing, storing or distributing insecticides containing arsenic are required to secure a license.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

BALTIMORE.

The November meeting of the Baltimore Branch of the American Pharmaceutical Association was called to order by President McKinney in Harris Hall of the University of Maryland on Wednesday evening, November 21st.

The reading of the minutes of the preceding meeting was omitted.

President McKinney appointed Dr. John F. Hancock, Dr. H. P. Hynson, and Dr. E. F. Kelly as a committee to draft suitable resolutions upon the death of Dr. Charles Caspari, Jr. The following resolutions were later presented:

"*Resolved*, That this Branch has learned with deep regret of the death of Prof. Chas. Caspari, Jr.

"*Resolved*, That the Branch suspend the consideration of all other business in order to pay appropriate respect to the lamented deceased.

"*Resolved*, That the members of the Baltimore Branch of the American Pharmaceutical Association will hold in lasting remembrance the lamented Dr. Caspari, who was one of the organizers of the Branch and who continued to the time of his death a loyal and useful member.

"*Resolved*, That the Secretary be directed to transmit to the family of the deceased a copy of these resolutions and our deepest sympathy for their bereavement."

As there were several members present who were unable to attend the Caspari memorial services, request was made that they be allowed to pay tribute to him at the meeting of the Branch, and Mr. W. J. Lowry, Jr., President McKinney, Dr. H. Engelhardt, Mr. Louis Schulze, Dr. J. F. Hancock, and Dr. H. P. Hynson told how greatly their lives had been influenced by Dr. Caspari and how much they respected him and honored his memory.

Dr. J. F. Hancock then read a communication from E. G. Eberle reporting the death of President Charles Holzhauer.

Reports of the meeting of the American Pharmaceutical Association at Indianapolis were made by Dr. H. Engelhardt and Dr. E. F. Kelly. Dr. Engelhardt stated that he attended all of the meetings of the Council with the exception of one and was well pleased with the work accomplished calling especial attention to the committee appointed for research work, this work to be financed by the money accruing from the sales of the National Formulary. Dr. Engelhardt also stated that he attended all of the meetings of the Scientific Section, and enjoyed the papers presented.

Dr. Kelly's report of the Indianapolis meeting was more general. He expressed pleasure in the great interest shown by all present in the meetings of the different Sections and regretted that it was a physical impossibility for one to attend all of the meetings of all of them. He called especial attention to President Wulling's address, which dealt in a large measure with the federation of pharmaceutical organizations; to the report of the great strides made in the successful cultivation of crude drugs; to the masterly presentation by J. C. Peacock of Philadelphia and Orel Jones of Nebraska of the idea that the druggist should capitalize his responsibility; of how the House of Delegates, if properly conducted, could be made the clearing house of the Association, and that no matters other than those involving finances would then have to be brought before the Council; and to the interest elicited in the Conference of Faculties by the proposed requirement of four years' high school training, beginning with the year 1923.

Dr. Daniel Base then spoke of the great interest the students of the Department of Pharmacy of the University of Maryland had taken in the Edmonds Bill. Quite a discussion followed and the Branch went on

record as endorsing the Edmonds Bill, the Secretary being instructed to send communications to the Maryland Senators and Congressmen advising them of the action taken by the Branch.

This being the first meeting since May, several members expressed their pleasure in the large attendance and interest manifested, and promised to assist the Chairman of the Executive Committee in making future meetings equally interesting and instructive.

B. OLIVE COLE, *Secretary-Treasurer*.

DETROIT.

The members of the Detroit Branch of the American Pharmaceutical Association had the privilege of hearing two very competent men at the regular meeting, Dec. 14th.

M. O. Williams, secretary of the Michigan Drug Co., gave a talk on "The Growing, Gathering, Marketing and Retail Selling of Sponges." With samples of the different grades and species of sponges, pictures of the warehouses and markets, and a first-hand knowledge of the methods of gathering, the audience was given an insight into the sponge industry which is seldom accorded any one, except buyers.

Since practically every human being is indebted to the rubber industry from the entrance into this world to the exit and all through life, all modern inventions from the telephone to the submarine having been made possible through the same medium, the topic of "The Manufacture and Selling of Rubber Goods" was of keen interest to all present. W. S. Davison, sales manager of the Drug-Sundry Department of the Miller Rubber Company, Akron, Ohio, gave a graphic description of the manufacture of rubber goods, from the crude product to the surgeon's glove, and from his observations as a salesman he showed the necessity for the druggist to merchandise and not merely storekeep.

MAY STRAWN, *Secretary*.

NASHVILLE.

A joint meeting of the Nashville Branch of the American Pharmaceutical Association and the Nashville Drug Club was held December 13, with D. J. Kuhn presiding.

After the approval of the minutes of the previous meeting, a letter was read from Mr. Harry Hogshead, of Staunton, Va., in which he stated that his community was also having

trouble in the enforcement of the prohibition laws. In an article he enclosed, entitled "Remove the Tempter," he advocated the removal of the alcohol content from the label as a means of lessening the sale of Essence of Ginger and flavoring extracts for beverage purposes.

As a result of the action taken at the last meeting, the wholesalers have volunteered to limit their sales of Essence of Ginger; the calls have also greatly decreased.

Quite a number of letters have been received recently from manufacturers endorsing the Butterick "Buy-at-Home" plan, as a result of the letters sent out by the Drug Club.

Attention was called to the increased difficulties in delivering goods due to the enforcement of the Child Labor laws. Extra charges, the cutting out of small deliveries and an appeal to the public through the press to carry home goods when possible, were some of the suggestions made to relieve the situation.

S. C. Davis, Ira B. Clark and M. E. Hutton were named as a committee to confer with the Mayor and the Sheriff in regard to the arrest of some druggists for selling cigarettes. Although there was a law prohibiting the sale of them, the last legislature licensed their sale and many paid the tax, supposing they had a right to sell them. Now their money is tied up in stock with no chance to dispose of it.

WILLIAM R. WHITE, *Secretary*.

NEW YORK.

The December 1917 meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Mayer in the Library of the New York College of Pharmacy on Monday evening, the 12th, at 8:30 o'clock.

The minutes of the preceding meeting were read by the Secretary and adopted as correct.

The Treasurer submitted his report which showed a balance of \$223.00 on hand. This was ordered filed.

Membership Committee.—Mr. Nitardy's application to local branch was received and passed.

Committee on Fraternal Relations.—Dr. Diner stated that there was considerable difficulty in establishing fraternal relations and that because of lack of support he would refuse to accept another nomination to his office. This report was received with regret.

Progress of Pharmacy.—Dr. Diekman because of a cold was unable to be present.

Committee on By-Laws.—Dr. Diner reported progress and promised to have a report at our next meeting.

President Mayer appointed the following members to serve on the nominating committee: Henry V. Army, Hugo Kantrowitz, Thomas Latham.

A motion was made by the Secretary, seconded and carried that the members of our branch who entered the services of our country be allowed to continue their membership in the Branch without payment of dues until the expiration of the present war.

It was moved, seconded and carried that a page in our minutes be set aside in commemoration of Mr. Charles Holzhauer, and that the regular January meeting be devoted as a memorial meeting.

President Mayer appointed Prof. Jeannot Hostmann, Chairman, Edward A. Sayre and John C. Gallagher to serve on a committee to draw up suitable resolutions in commemoration of Mr. Holzhauer's death.

New Business.—Dr. C. P. Wimmer read a very interesting paper on "Emergency Substitutes for Sugar, Syrup, and Glycerine." The paper together with the samples shown aroused a spirited discussion. A vote of thanks was extended to Dr. Wimmer, and the meeting then adjourned.

HUGO H. SCHAEFER, *Secretary*.

PHILADELPHIA.

The December meeting of the Philadelphia Branch of the American Pharmaceutical Association was held Tuesday evening, December 4th, with the President, Ambrose Hunsberger, in the chair. Routine business dispensed with, the speaker of the evening was presented to the meeting in the person of Dr. Robert Kraus, chemist to the Phipps Institute of the University of Pennsylvania. The subject under consideration was "The Preparation of Dichloramin-T. and Chlorinated Eucalyptol 1.2."

The author went into detail concerning the preparation of the much-heralded antiseptic, dichloramin-T., and outlined a new and original method for its production, starting with toluol, and designed to furnish a perfectly stable product. The difficulty with a former method was that it did not completely purify the substance and caused, on standing, a gradual breaking down of the chemical with a consequent loss of chlorine. Dr. Kraus' paper is printed in this issue of the JOURNAL.

The preparation of the solvent, chlorinated eucalyptol, was also discussed by the speaker, who stated that it was best prepared by passing chlorine gas into eucalyptol (sp. gr. 0.922). The original Dakin technique, using potassium chlorate and hydrochloric acid for generating chlorine and chlorinating the eucalyptol was held to be unsatisfactory since the final product was not uniform in its chlorine content. Dr. Kraus brought his paper to a close by referring to the various concentrations of the dichloramin-T. in the chlorinated eucalyptol and stated that, while the range covered from a 5 to a 20 percent solution, the usual strength utilized by the surgeons was a 7.5 percent solution. By means of a test, using starch iodide as a reagent, Dr. Kraus demonstrated the absence of free chlorine in the preparation made according to the revised method, and the presence of the undesirable free chlorine in a product prepared according to the older method. Samples were shown demonstrating the various steps in the production of the dichloramin-T. and also beautiful crystals of the finished product. After referring to the excellence of the paper, the Chairman asked for a discussion of the paper.

Elmer H. Hessler stated that he had been endeavoring for some time to turn out a satisfactory dichloramin-T. and enumerated the difficulties which he had encountered along the way. Dr. Estelle Lee then in a very efficient manner, after deploring the unfortunate notoriety which this new antiseptic had attained through newspaper publicity, gave some of the experiences which he and his colleagues had gained in studying the proposition of and search for the "efficient antiseptic." He stated that the efficacy of the volatile oils as antiseptic agents had long been known and surprised the listeners by stating that eucalyptol had a phenol coefficient of 0.35 while the chlorinated eucalyptol had (comparatively speaking) the phenol coefficient of zero. This was only true, however, when tested "in glass." Dr. Lee further stated that the fact had been established, at the front, that all wounds if given proper surgical treatment within six hours after their infliction, would heal without recourse to any antiseptic at all. The search for an economical antiseptic and an efficient one, of course, was inaugurated however, to give surgeons a means of treating the wounds of those who were unable to receive immediate treatment. So far this new, dichloramin-T. was the very

best antiseptic found, and considering the fact that about fifty such "very best" antiseptics have been utilized and afterwards discarded since the commencement of hostilities, Dr. Lee granted that this was rather an assertive statement to make. Answering a question propounded by Prof. Gershenfeld, Dr. Lee claimed that the reason for the continuous success of the dichloramin-T. in chlorinated eucalyptol was not alone due to the fact that it was much more economical to use than the older Carrel-Dakin solution, but also to the fact that it did what it was supposed to do when properly prepared and properly used. John K. Thum requested information concerning the germicidal power of the solution of dichloramin-T. in chlorinated eucalyptol after precipitation had commenced. Dr. Lee, answering, stated that after the precipitation commenced the product should be discarded since precipitation was an evidence of the fact that decomposition with a consequent liberation of chlorine was occurring and that such a product became extremely irritating and, therefore, injurious when applied to denuded tissues.

Professor C. H. LaWall then referred to the formulas which the speaker has supplied and pertinently demonstrated that the formula outlined for a 20 percent solution actually made only a 16 percent solution. Both Dr. Kraus and Dr. Lee coincided, however, in stating that the error, now quite apparent, had simply been handed down to them from other sources, and that for the sake of uniformity the formulas should and would be changed. Others participating in the discussion were Dr. Fischelis, Professor Gershenfeld, Messrs. Eberle, Thum, and Hessler. Some other points brought out in the discussions are as

follows: First, that dichloramin-T. can be purified by dissolving it in a weak solution of caustic soda and passing chlorine into the solution until the crystals are precipitated out. The crystals are then thoroughly dried by proper means. Second, that the amorphous form of this chemical is more stable than the crystalline form. Third, that the various strength solutions of the dichloramin-T. should be made up in small quantities and not kept on hand over seven days. Amber glassware should be the only containers. Fourth, that the solution should be made up in absolutely dry bottles, free also from alcohol or ether. Fifth, that eucalyptol is unobtainable in England at the present time, and that a search is being made for a similar product that will serve equally well as a chlorine carrier. Sixth, that the solution of dichloramin-T. in chlorinated eucalyptol has been used in several instances as a nasal spray with dire results to the user, due to its irritating the sensitive mucous membrane. It has been recommended for this purpose, well diluted with paraffin oil. Seventh, that, after all, in the prevention of infection, the chemical agent plays a very unimportant part and that proper surgical technique is the main secret of success in promoting quick healing. As Dr. Lee expressed it, surgical efficiency contributed 90 percent of the success of the treatment and the efficient antiseptic the rest.

On motion of E. G. Eberle, seconded by Prof. C. H. LaWall, the thanks of the Branch were heartily extended to both Dr. Kraus and Dr. Lee. The meeting was one of the most successful in the history of the Local Branch, and was attended by 75 persons.

IVOR GRIFFITH, *Secretary*.

LICENSE TO MAKE SALVARSAN.

Announcement has been made in Washington that three licenses had been granted by the Federal Trade Commission for the manufacture of Salvarsan (December 1). Two of the licenses are in New York and one in Philadelphia. The latter has been granted to the Dermatological Research Laboratories; the laboratories are located in the Polyclinic Hospital, and Dr. Jay F. Schamberg is director. The New York Manufacturers are Herman A. Metz Laboratories and Takamine Laboratories.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 1.

PHILADELPHIA, PA., September 26, 1917.

To the Members of the Council:

GENTLEMEN:

The following is a list of the members of the Council for 1917-18:

Members of the Council, 1917-18.

Apple, Franklin M., 3233 W. Berks St., Philadelphia, Pa.
Arny, H. V., 115 W. 68th St., New York, N. Y.
Beal, James H., 801 W. Nevada St., Urbana, Ill.
Beringer George M., 5th Federal Sts., Camden, N. J.
Bradley, Theo. J., Mass. College of Pharmacy, Boston, Mass.
Day, Wm. B., 701 So. Wood Street, Chicago, Ill.
Diner, Jacob, 316 W. 84th St., New York, N. Y.
Dohme, Alfred R. L., Pratt & Howard Sts., Baltimore, Md.
Dewoody, Wm. Lawrence, 516 W. 4th St., Pine Bluff, Ark.
Dye, Clair A., Ohio State Univ., Columbus, Ohio.
Eberle, Eugene G., 253 Bourse Building, Phila., Pa.
Eldred, Frank R., 3325 Kenwood Ave., Indianapolis, Ind.
Engelhardt, Hermann, 2912 Garrison Ave., Baltimore, Md.
England, Joseph W., 415 N. 33rd St., Philadelphia, Pa.
Fennel, C. T. P., 614 W. Court St., Cincinnati, Ohio.
Fischelis, Robert P., 828 North 5th St., Philadelphia, Pa.
Fuller, H. C., 19th & B Sts., N. W., Washington, D. C.
Goddling, John G., 278 Dartmouth St., Boston, Mass.
Hall, W. A., 200 Griswold St., Detroit, Mich.
Hensel, Samuel T., 351 Mercantile Bldg., Denver, Colo.
Hilton, Samuel L., 1033 22nd St., N. W., Washington, D. C.
*Holzhauer, Charles, 732 Heigh St., Newark, N. J.
Hopp, Lewis C., 1104 Euclid Ave., Cleveland, Ohio.
Hostmann, Jeannot, 115 W. 68th St., New York, N. Y.
Jordan, C. B., 409 Russell St., Lafayette, Ind.
Koch, J. A., Bluff & Pride Sts., Pittsburgh, Pa.
LaPierre, E. H., 80 River St., Cambridge, Mass.
Mason, Harry B., P. O. Box 484, Detroit, Mich.
Mayo, Caswell A., 66 West Broadway, New York, N. Y.
Peacock, J. C., Erie & Broad Sts., Philadelphia, Pa.
Roehr, Clarissa M., University Hospital, San Francisco, Cal.
Sayre, L. E., Univ. of Kansas, Lawrence, Kansas.
Seltzer, L. A., 32 Adams St., W. Detroit, Mich.
Snow, Clyde M., 701 S. Wood St., Chicago, Ill.
Stewart, Francis E., 11 W. Phil-Ellena St., Phila., Pa.
Stockberger, W. W., Bureau of Plant Industry, Washington, D. C.
Whelpley, Henry M., 2342 Albion Place, St. Louis, Mo.
White, William R., 311 Grace St., Nashville, Tenn.
Wilkerson, J. A., 2036 Russell St., St. Louis, Mo.
Walling, F. J., University of Minnesota, Minneapolis, Minn.

Total number, 40.

The following committees of the Council have been elected for 1917-18:

* Deceased November 19, 1917.

COMMITTEES OF THE COUNCIL.

Committee on Finance and Auditing Committee.

J. A. Koch, Chairman, Pittsburgh, Pa. Otto F. Claus, St. Louis, Mo.
E. H. LaPierre, Cambridge, Mass.

Committee on Publication.

J. W. England, Chairman, Philadelphia, Pa. C. A. Mayo, New York, N. Y.
George M. Beringer, Camden, N. J. H. B. Mason, Detroit, Mich.
E. L. Newcomb, Minneapolis, Minn.

Ex-Officio Members—The Editor, Reporter on the Progress of Pharmacy, General Secretary and Treasurer.

Committee on Invested and Trust Funds.

Wm. B. Day, Chairman, Chicago, Ill. Frederick J. Wulling, Minneapolis, Minn.
E. G. Eberle, Philadelphia, Pa. H. M. Whelpley, *ex-officio*, St. Louis, Mo.

Committee on Centennial Fund.

Charles Holzhauer, Chairman, Newark, N. J. Wm. B. Day, Chicago, Ill.
J. A. Koch, Pittsburgh, Pa.

Committee on Transportation.

Caswell A. Mayo, Chairman, New York, N. Y. Fred I. Lackenbach, San Francisco, Cal.
Wm. B. Day, Chicago, Ill. E. Floyd Allen, Minneapolis, Minn.
Lewis C. Hopp, Cleveland, Ohio. F. C. Godbold, New Orleans, La.
H. M. Whelpley, St. Louis, Mo. W. S. Elkins, Jr., Atlanta, Ga.
Charles G. Merrell, Cincinnati, Ohio. C. Herbert Packard, E. Boston, Mass.
Charles Caspari, Jr.,¹ Baltimore, Md. F. W. Nitardy, Denver, Colo.

The General Secretary and Local Secretary, *ex-officio*, members.

¹ Deceased October 13, 1917.

Committee on National Formulary.

W. L. Seoville, Vice-Chairman, Detroit, Mich. E. Fullerton Cook, Phila., Pa.
Clyde M. Snow, Chicago, Ill. H. A. B. Dunning, Baltimore, Md.
A. B. Stevens, Ann Arbor, Mich. Samuel L. Hilton, Washington, D. C.
Otto Raubenheimer, Brooklyn, N. Y. Charles H. LaWall, Phila., Pa.
Leonard A. Seltzer, Detroit, Mich. Geo. M. Beringer, Camden, N. J.
Harry V. Army, New York, N. Y. Wm. A. Hall, Detroit, Mich.

Adam Wirth, New Orleans, La.

Committee on Standards.

| | |
|-----------------------------------------------|-------------------|
| George M. Beringer, Camden, N. J. | Term expires 1918 |
| H. H. Rusby, Newark, N. J. | Term expires 1918 |
| F. R. Eldred, Indianapolis, Ind. | Term expires 1918 |
| John M. Francis, Detroit, Mich. | Term expires 1918 |
| Elmer E. Wyckoff, Brooklyn, N. Y. | Term expires 1919 |
| J. A. Koch, Chairman, Pittsburgh, Pa. | Term expires 1919 |
| L. D. Havenhill, Lawrence, Kan. | Term expires 1919 |
| E. L. Newcomb, Minneapolis, Minn. | Term expires 1919 |
| Henry Kraemer, Ann Arbor, Mich. | Term expires 1920 |
| Eustace H. Gane, New York City | Term expires 1920 |
| B. L. Murray, Rahway, N. J. | Term expires 1920 |
| W. A. Puckner, Chicago, Ill. | Term expires 1920 |
| John G. Roberts, Philadelphia, Pa. | Term expires 1921 |
| Otto Raubenheimer, Brooklyn, N. Y. | Term expires 1921 |
| George D. Rosengarten, Philadelphia, Pa. | Term expires 1921 |
| O. A. Farwell, Detroit, Mich. | Term expires 1921 |

Committee on Recipe Book.

| | |
|--------------------------------------------------|-------------------|
| Clarence G. Spalding, New Haven, Conn..... | Term expires 1918 |
| E. Fullerton Cook, Philadelphia, Pa..... | Term expires 1918 |
| William Gray, Chicago, Ill..... | Term expires 1918 |
| Theo. D. Wetterstroem, Cincinnati, Ohio..... | Term expires 1919 |
| P. Henry Utech, Meadville, Pa..... | Term expires 1919 |
| Wm. L. Cliffe, Philadelphia, Pa..... | Term expires 1919 |
| Otto Raubenheimer, Chairman, Brooklyn, N. Y..... | Term expires 1920 |
| C. H. LaWall, Philadelphia, Pa..... | Term expires 1920 |
| W. L. Scoville, Detroit, Mich..... | Term expires 1921 |
| W. H. Glover, Lawrence, Mass..... | Term expires 1921 |
| Curt P. Wimmer, New York, N. Y..... | Term expires 1921 |
| John K. Thum, Philadelphia, Pa..... | Term expires 1922 |
| I. A. Becker, Chicago, Ill..... | Term expires 1922 |
| Clarissa M. Roehr, San Francisco, Cal..... | Term expires 1922 |

Commission on Proprietary Medicine.

| | |
|-------------------------------------------------------|-------------------|
| Charles Caspari, Jr., ¹ Baltimore, Md..... | Term expires 1918 |
| S. C. Henry, Philadelphia, Pa..... | Term expires 1919 |
| J. H. Beal, Chairman, Urbana, Ill..... | Term expires 1920 |
| W. H. Cousins, Dallas, Tex..... | Term expires 1921 |
| John C. Wallace, New Castle, Pa..... | Term expires 1922 |

Please report errors of names or addresses.

Motion No. 1 (Appropriation of \$100 for expenses of Committee on Membership). Moved by W. B. Day, seconded by J. A. Koch, that \$100 be appropriated for the expenses of Committee on Membership. The appropriation is approved by the Committee on Finance.

Chairman Day of Committee on Membership writes:

"I find it necessary to add to the appropriation for membership work. Our budget item for the Committee on Membership is \$250.00. We have paid out to the New York Branch \$176.00 for commissions; two other branches \$14.00, leaving only \$60.00 for the ordinary work of the Committee. We have an overdraft in the account of \$8.95."

At the final general session at Indianapolis, the report of the American Joint Committee on Horticultural Nomenclature was presented and it carried a recommendation that \$25.00 be appropriated toward the expense of the work conducted by this joint committee. This request for an appropriation was approved by the general session.

Motion No. 2 (Appropriation of \$25.00 for expenses of American Joint Committee on Horticultural Nomenclature). Moved by W. B. Day, seconded by J. A. Koch, that the sum of \$25 be appropriated towards the expenses of the American Joint Committee on Horticultural Nomenclature. The appropriation is approved by the Committee on Finance.

Motion No. 3 (Membership Dues in American Metric Association). Moved by W. B. Day, seconded by J. A. Koch, that \$10.00 be appropriated for an organization-membership for the American Pharmaceutical Association in the American Metric Association. This is in conformity with the recommendation of the report of the Committee on Weights and Measures which was approved by the Association at the final general session.

Motion No. 4 (Additional Appropriation of \$400 for Year Book, 1915, Vol. 4). Moved by W. B. Day, seconded by J. A. Koch, that an additional appropriation of \$400 for the Year Book, 1915, Vol. 4, be made. The appropriation is approved by the Committee on Finance.

General Secretary Day writes:

"I wish to explain that our appropriation for the Year Book, Volume III, was but \$2500.00 (see Budget for 1916). The cost of the Year Book, Volume III, was approximately \$2900.00, leaving a deficit of \$400.00 which was taken care of at the time from \$3000.00 appropriated in the 1917 budget for Volume IV. We are now that amount short in our appropriation for the current volume and the additional appropriation, as above moved, clears up this deficit.

¹ Deceased October 13, 1917.

"The approximate cost of the Year Book, Volume III, was \$2901.62. The approximate cost of the Year Book, Volume IV, was \$2919.77. The appropriations for these two volumes were \$2500.00 and \$3000.00, respectively. There may be still a few small items, such as postage or express, chargeable against the 1917 Year Book account which this additional appropriation will fully meet."

General Secretary Day writes as follows:

"The Committee on Research of the Scientific Section offered the following resolution which was adopted by the Section and approved by the third general session. You will note that it entails the appointment of a committee by the Council. The resolution is as follows:

"That the Section recommend to the Council that a Committee on Research be added to the standing committees of the Association. That this Committee consist of ten members—two to serve five years; two four years; two three years; two two years; and two one year; and that each year thereafter two members be appointed to serve five years and that this Committee be appointed by the Council and reports be presented before the Scientific Section."

"Upon motion of Dr. Whelpley, the general session adopted the above recommendation with the request that this committee formulate rules and regulations for proposed research and report at the next meeting of the Association.

"The Committee of the Scientific Section which made this recommendation consisted of C. H. LaWall, Chairman, C. E. Vanderkleed, Wm. Mansfield, A. Viehoever, W. L. Scoville."

It has been suggested that the members of the Committee of the Scientific Section who made the recommendation be appointed as five of the ten members of the Committee. What is the wish of the Council?

415 N. 33RD STREET.

J. W. ENGLAND,
Secretary.

A. PH. A. LETTER NO. 2.

PHILADELPHIA, PA., October 16, 1917.

To the Members of the Council:

GENTLEMEN:

Word has been received of the demise of Charles Caspari, Jr., one of the foremost figures of American Pharmacy and for many years actively identified with the American Pharmaceutical Association, both as a member and officially as Permanent Secretary (1894-96), and later as General Secretary (1896-1911). He died at his home in Baltimore on Saturday, October 13, 1917, aged 67 years. Owing to heart disease he had been in poor health for several months.

Edward Kremers, Madison, Wis., addressed the Council as follows:

"Rumor has it that in an army camp the dispensary is in charge of a medical student and that he is assisted by two drug store apprentices who have enlisted. Possibly similar conditions exist elsewhere. Whether reported correctly or not, it seems to me that the A. Ph. A. owes it to our calling to ascertain just what is the pharmaceutical situation in our camps and cantonments. While I am personally interested and have asked former students to inform me, it seems to me that such an investigation as proposed should not be left to individuals, but should be regarded as an imperative duty on the part of our Association. Trusting that my suggestion may receive your favorable consideration, I remain."

W. W. Stockberger, Washington, D. C., writes as follows:

"I have only recently received Council Letter No. 1, but I wish particularly to comment upon the proposition of Professor Day's letter with respect to the appointment of a Committee on Research.

"In the meetings of the Council at Indianapolis great emphasis was laid upon Research as a very important factor in the future growth and development of the profession of pharmacy. This being the case, the appointment of a Committee on Research becomes a matter for most serious consideration, and the heavy responsibility which has devolved upon the Council should be fully realized before any action is taken. Personally, I am inclined to characterize as hasty the suggestion that the members of the Committee of the Scientific Section who made the recommendation be appointed as five of the members of the Committee.

"The Committee on Research, I believe, will be charged with the grave responsibility of organizing and stimulating research among the various bodies pharmaceutic, with the view to raising scientific investigation within the American Pharmaceutical Association to the level which has already been reached by the American Medical Association, The American Chemical Society and other organizations that have long since recognized the necessity for organization and intensive application in the field of research. The Research Committee should include the very best men of our Association—men who not only have the ability to conduct or direct research but also the proved willingness to take an active part in the work of the Committee, the necessary time at their disposal, and the professional connection through which wide influence can be exerted. It must be admitted that either through personal disinclination or because of circumstances beyond their control, some very brilliant men are unfitted to serve on important committees, and in my opinion no man should be placed on our Committee on Research until his fitness to serve thereon has been determined beyond question.

"In selecting this Committee would it not be well to choose men from various lines of activity which though divergent in their main objects yet find a common interest in pharmaceutical research. Certainly a higher degree of coördination would be attached if the members of the Committee could be selected to represent each of the following: Colleges and Universities, Research or Experiment Stations, Departments of the U. S. Government, City Hospitals, Chemical and Pharmaceutical Manufacturers. Some such distribution of the members of the Committee is, I believe, an essential step toward arousing that general interest in the work of the Committee which is so necessary to the realization of the aims for which its appointment was authorized.

"My disapproval of the suggestion to appoint the members of the Committee of the Scientific Section as five or ten members of the Research Committee is based on the method of their selection, without regard to the personnel of the Committee itself. The election of this Committee by the Scientific Section resulted automatically following the adoption of one of the recommendations made by the chairman of the Section in the opening address at the Atlantic City meeting. This election occurred at the close of the last session of the Scientific Section, when only a small part of the membership of the Section was present. As there was no time for the deliberation and conference which should precede the appointment of an important committee, nominations were made from the floor of members present at the meeting and their immediate election resulted.

"The Council is now about to appoint, for a term of several years, members of an important committee, which will in a large measure determine the outcome of one of the most far-reaching movements ever inaugurated in our Association, and it is certainly incumbent upon us to exercise the greatest possible degree of wisdom and judgment in their selection."

Lucius E. Sayre, Lawrence, Kansas, writes:

"I have your letter of September 26th (No. 1). Reference is made to a communication from Secretary Day in regard to carrying on research, the recommendation coming through the Scientific Section of the organization.

"Permit me to state, as a member of the Council, that I hope in adding another standing committee to the many present existing ones, that the funds of the treasury need not necessarily be drawn upon to keep its work and functions alive and active. In formulating rules and regulations for proposed research there should be nothing attempted involving expenditure of treasury funds except so far as the funds are reserved or contributed for this specific purpose.

"It is stated in this communication that this Committee has been requested to formulate rules and regulations for proposed research. This seems to me to need some explanation. I should have preferred the paragraph to read that the Committee be requested to formulate plans for the stimulation of research rather than for *regulating* and *ruling* research. Research should be spontaneous, to be effective. It cannot be standardized. Stimulation should not take the place of subsidy so far as the American Pharmaceutical Association is concerned at the present time. The personnel of the Committee should be as broad as possible and to this end nominations and ballots should be resorted to in electing the members. This point seems to me to be vital to the success of the proposed Committee."

J. W. ENGLAND,
Secretary.

PHILADELPHIA, PA., October 29, 1917.

To the Members of the Council:

GENTLEMEN:

Motion No. 1 (Appropriation of \$100 for expenses of Committee on Membership. Motion No. 2 (Appropriation of \$25.00 for expenses of American Joint Committee on Horticultural Nomenclature). Motion No. 3 (Membership Dues in American Metric Association), and Motion No. 4 (Additional Appropriation of \$400 for Year Book, 1915, Vol. 4) have each received a majority of affirmative votes.

General Secretary Day writes:

"In our 1917 budget, we made no provision for buttons and pins. Dr. Whelpley has presented a bill for \$71.25 for buttons and pins and I have secured the approval of the chairman of the Finance Committee and his second to a motion appropriating \$75.00 for this purpose.

"Will you therefore please submit in your first Council Letter the following motion: Moved by W. B. Day and seconded by J. A. Koch that an appropriation of \$75.00 be made for the purchase of buttons and pins?"

This will be known as *Motion No. 5 (Appropriation of \$75 for A. Ph. A. Buttons and Pins).*

Jeannot Hostmann writes:

"In re the Committee on Research, I would like to state that I believe Mr. Stockberger's remarks are quite pertinent. The members of this Committee will have it in their power to inaugurate a plan that will do more toward the proper recognition of professional pharmacy and pharmacists than anything that has ever been proposed. I feel, therefore, that it is incumbent upon the members of the Council that they only make said appointments after careful and deliberate consideration.

"In connection with Mr. Stockberger's remarks concerning the distribution of committee memberships among the 'Colleges, Research and Experiment Stations, Departments of the United States Government, Hospitals, Chemical and Pharmaceutical Manufacturers,' I might, at this time, call the attention of the members of the Council to the extensive research work that has been inaugurated by the American Drug Manufacturers' Association. Perhaps it would not be out of place to keep this in mind when the time for selection arrives.

"After all is said and done, however, would it really be necessary to have these various allied branches represented by membership in the Committee? All of the aforementioned bodies are already well equipped financially to pursue the proper kind of research work, and if there was appointed a committee consisting of members of the A. Ph. A. possessing the proper qualifications to direct research and the real enthusiasm to encourage it, there would certainly be no lack of coöperation with other interested organizations.

"Would it not perhaps be better if the Committee concentrated its efforts toward stimulating research among the real simon-pure professional American pharmacists? I may be mistaken, but I believe that this is what the proposers of the Research Fund had in view and I believe that there are enough members of our Association connected with professional retail pharmacy to choose from when making selections for members of the Committee."

Charles T. P. Femmel writes:

"In reference to Prof. Kremer's remarks (in Council Letter No. 2) as to the status of American pharmacists in the realm of the defense programme I will say that my intelligence not alone as an American born but as a pharmacist has been repeatedly insulted by general comment as to the pharmacist's educational qualification. In my paper at the Indianapolis meeting I attempted to bring out some of the reasons why pharmacy fails of recognition. There are many phases to the question and easy of remedy, but because we admit our shortcoming does not necessarily imply ignorance or incompetency. In the preface of a medical text-book of recent date we are informed that the valued services of the pharmacist of former days are no longer required, in fact that he is a secondary consideration in the present age. With the propaganda against pharmacy not alone by other branches of science but by pharmacists themselves, professional pharmacy will be a science of the past—the fact cannot be presented to the pharmacists of the country too strongly and it is about time that they arise in a body to defend their rights. As I have often said, every pharmacist should be a member of the American Pharmaceutical Asso-

ciation, if for no other reason than loyalty to their chosen profession. Such a wave of unselfish devotion would sweep aside every obstacle and create a true American Pharmacy. In reference to the Research matter; I have felt that silence was golden, but since the matter is open for discussion I will say that the medical profession finds fault with the pharmaceutical profession for its lack of research pharmaceutical—I doubt very much whether the American Pharmaceutical Association could father a project so vast and coupled with tremendous expense. Resolutions and delegating the same to a committee is only the beginning and not the end desired. The question is of vital import and should receive serious consideration."

Jacob Diner writes:

"In re Committee on Research I wish to indorse all that Mr. Stockberger has said. The matter of the personnel of the Committee was brought up at the meeting in Indianapolis, Scientific Section, and I remember distinctly that no definite disposition of the manner of appointing the Committee was made. The general view obtained that the Committee was to be appointed by the usual channels, Council and President of the A. Ph. A., and there seems to be no reason why the accidental connection of certain names with the motion should presuppose their appointment on such a committee."

George M. Beringer writes:

"Council Letter No. 2 raises several pertinent questions. I quite agree with Professor Kremers as to the necessity for a thorough investigation of the conditions under which medicines are dispensed in the Army and the pharmaceutical situation in the army camps and cautions. Doubtless the Committee on Status of Pharmacists in the Government Service will look upon this as properly part of their duty.

"Dr. Stockberger's comments on the proposed appointment of a Committee on Research partly clarify the situation. However, I feel that this matter is not yet clearly before some of the members of the Council, and, as it should become a matter of historical record, I venture a few comments on this subject.

"In the report of the Committee on Financial Control of the N. F., there was a recommendation that a percentage of the proceeds from the publication of the N. F. should be set aside toward establishing an American Pharmaceutical Research Fund. After considerable discussion, the Council agreed that there should be set aside fifty percent of the apparent profits from the publication of the N. F., toward the establishing of a Research Fund of the American Pharmaceutical Association. When the matter came up for discussion in the final general session, as a matter presented in the minutes of the Council, many of the members present appeared not to have been acquainted with the discussion that had taken place in the Council room, and did not appear to be able to differentiate between the recommendation from the Council that a committee on administration and control of the work of the research fund should be appointed, and the recommendation which came in the form of a resolution from the Scientific Section that a Committee on Research should be appointed or rather continued, as such a committee had already been provided for at the preceding annual meeting held at Atlantic City.

"The Committee as finally agreed upon, I believe, was not definitely instructed as to its duties. I quite agree with Dr. Stockberger that the full intent of the several recommendations submitted to the Association will not be fully attained by simply continuing the Committee on Research of the Scientific Section. A wiser plan would be to permit either the President or the Council to give this matter proper consideration and select a committee that will have in mind all of the suggestions that have been made towards effective work on behalf of pharmaceutical research."

W. L. Dewoody writes:

"It is much to be deplored, if our cantonments and army camps are supplied with low-grade, inefficient pharmacists. We know too well that the safety and health of our soldiers depend as much or more upon the competence of the dispenser as upon the physician. Besides, the reputation of pharmacy as a profession is largely effected by the status of the camp dispensers. I do not know the rating of the pharmacists at Camp Pike, Little Rock, but it might be possible for me to find out through my friend, Mr. W. C. Bond, son of our old friend, Dr. J. B. Bond.

"Now as to the Committee on Research Work, I believe the best course to pursue is to appoint a chairman of known ability, enthusiasm, and one thoroughly interested in research work, and allow him to submit the names for the Committee to be voted on, added to, and selected later. One such man could select a committee with more wisdom than the whole Association."

Caswell A. Mayo writes:

"As regards the Committee on Research, my view of the matter is this: The idea conveyed to my mind by the discussion and the action taken was that the Council was to appoint a committee on plan and scope for the work of the Committee on Scientific Research. This committee to be appointed now was not to be the Committee on Scientific Research in its final form, but was to be a committee on plan and scope. In the selection of this committee on plan and scope the greatest care should be exercised, of course, to include men representing each branch of the sciences included in pharmacy as well as men of constructive ability and with sufficient vision to be able to divine the future possibilities of the Committee on Research.

"It seems to me, therefore, that the Council should appoint a committee on plan and scope for the Committee on Research; that this committee should be instructed to devise a plan and scope and report to the Council for action within the next few months. This plan would be then distributed, not only to the Council members, but to others whose opinions might be entitled to weight. In fact, it might be well to have it circulated among all the members of the Association for general discussion, so that the committee could revise the plan in accordance with the criticisms received and submit a definite plan to the Council for final adoption prior to the next meeting, so that when the meeting takes place every detail of the plan would have been worked out, and it then would be the province of the Association at large to select the members of the Research Committee."

J. W. England writes:

"There seems to be some confusion as to the action taken at the Indianapolis meeting relative to the establishment of the Committee on Research and the following abstracts from the minutes may clarify the situation:

"The Resolution of the Scientific Section presented to the Council reads as follows:

"The Scientific Section recommends to the Council that a Committee on Research be added to the standing committees of the Association, that this Committee consist of ten members; two to serve five years, two to serve four years, two to serve three years, two to serve two years, and two to serve one year, and that each year thereafter two members be appointed to serve five years; that this Committee be appointed by the Council and reports be presented before the Scientific Section."

"The subject came before the Association (in the Council minutes) at the final general session on Saturday, September 1, 1917. An extended discussion ensued and a number of motions were made. The status of the several motions being in doubt, President Wulling, in order to clear the situation, asked that the motions before the house be withdrawn. There being no objection, he declared that there was no motion before the house, to which no exception was taken.

"Dr. H. M. Whelpley then moved that the Association adopt the recommendation of the Scientific Section and instruct the standing committee to report rules and regulations at the next annual meeting, which motion was carried.

"From this it is clear that the Association directed the establishment of a Committee on Research as a *standing* committee of the Association, and requested it to report rules and regulations at the next annual meeting. Furthermore, such a committee of the Association, if existent, would obviously take the place of the Committee of the Scientific Section elected by the Section at the Atlantic City meeting (JOUR. A. PH. A., 1916, 1046, 1052).

"But, the question arises, 'Can the Association or the Council establish a *standing* committee of the Association by resolution?' And the answer is, of course, in the negative. The by-laws of the Association on 'Committees' (Chapter X), especially Article 1 (Year Book 1915, XXXIV), which specifically names the different standing committees, must be amended. And so far as the writer knows, no such amendment of the by-laws was made either at the Atlantic City or Indianapolis meeting. Hence, it would seem that no steps for the election of a *standing* committee can be taken by the Council until this is done; and this cannot be done until the next annual meeting.

"The Council, however, can elect a *special* Committee on Research and instruct it to outline working plans, considering all the suggestions that have been made, and report rules and regulations to the next annual meeting, or, as Dr. Stockberger puts it, 'to formulate plans for the stimulation of pharmaceutical research.'

The special Committee on Research can be elected directly by the Council membership, or the Council can request the President of the Association or the Chairman of the Council, or both, to appoint such a committee."

Motion No. 6 (Election of Members). You are requested to vote on the following applications for membership:

- No. 1. Edmund H. J. Kochanski, 1142 8th Ave., Milwaukee, Wis., rec. by S. A. Eckstein and H. G. Ruenzel.
- No. 2. Robert Henry Lewis, Jr., P. O. Box 85, Gulfport, Miss., rec. by W. P. Porterfield and Wm. B. Day.
- No. 3. Jose M. Berengner, Santiago de Cuba, Oriente, rec. by J. G. Diaz and J. P. Alacan.
- No. 4. Albert J. Martin, 3416 S. Spring Ave., St. Louis, Mo., rec. by H. M. Whelpley and F. W. Sultan.
- No. 5. Edward C. Reick, 3201 Central Ave., Indianapolis, Ind., rec. by H. W. Rhodehamel and Francis E. Bibbins.
- No. 6. Edward William Koch, 2257 N. Illinois, Apt. No. 3, Indianapolis, Ind., rec. by Charles R. Eckler and Francis E. Bibbins.
- No. 7. Clara C. Hulskamp, 546 West St., Catherine, Louisville, Ky., rec. by Anna G. Bagley and Elizabeth Jenkins.
- No. 8. James Cook Fuller, 1012 Baltimore Ave., Kansas City, Mo., rec. by Paul L. Hess and Wm. Federmann.
- No. 9. William Wilson Rose, Georgetown, Delaware, rec. by Charles H. LaWall and Harold B. Mead.
- No. 10. Miguel Saavedra Salinas, 16 Principal St., Ceiba, Porto Rico, rec. by Wm. B. Day and Clyde M. Snow.
- No. 11. Alfred Frederick Brisson, U. S. S. Nereus, U. S. Navy, rec. by Wm. B. Day and J. F. Rupert.
- No. 12. Cesar Daniel Andrade, P. O. Box 703, Guayaquil, Equador, S. A., rec. by Robert P. Fischelis and Charles E. Vanderkleed.
- No. 13. Ernest Oreste Bianco, 2120 Crotona Ave., New York, N. Y., rec. by Jacob Diner and G. Horstmann.
- No. 14. Otto F. A. Canis, Jerome Ave., Ozone Park, New York, rec. by Jacob Diner and Gustave Horstmann.
- No. 15. John Nesbit Swan, Univeristy P. O., Miss., rec. by H. M. Faser and Wm. B. Day.
- No. 16. George Ernest Elwers, 1625 Grand Ave., Milwaukee, Wis., rec. by H. G. Ruenzel and S. A. Eckstein.
- No. 17. Anton Hogstad, Jr., So. Dakota State College of Agri., Brookings, S. D., rec. by Charles H. LaWall and M. R. LaWall.
- No. 18. Frederick Clinton Dodds, Dept. of Registration and Education, State Capitol Bldg., Springfield, Ill., rec. by Wm. B. Day and E. N. Gatherer et al.
- No. 19. Walter A. Ritter, 629 Peosta Ave., Helena, Mont., rec. by E. M. Krembs and Frank R. Keating.

415 N. 33RD ST.

J. W. ENGLAND, *Secretary*.

A. PH. A. COUNCIL LETTER NO. 4.

PHILADELPHIA, PA., November 15, 1917.

To the Members of the Council:

GENTLEMEN:

Motion No. 5 (Appropriation of \$75 for A. Ph. A. Buttons and Pins), and Motion No. 6 (Election of Members; Applications Nos. 1 to 19, inclusive) have each received a majority of affirmative votes.

Under date of October 30, F. J. Wulling writes:

"Because I was drafted into our local Liberty Loan campaign I have not had an earlier opportunity of replying to the Council Letter No. 2.

"1. I suppose the Chairman of the Council or the President of the Association will appoint a committee to draft suitable resolutions on the death of our friend, Prof. Charles Caspari, Jr.

"2. Dr. Kremers expresses my sentiments. A strong Council committee might be able to do the work suggested by him. The A. Ph. A. certainly should do something in the matter. Investigation of, and effective administration upon a matter such as this would be part of the functions of the federation of all pharmaceutical bodies that I recently recommended.

3. On the whole, I indorse Dr. Stockberger's position in the matter of a Committee on Research and I hope the matter can be pursued to a fruitful and satisfactory end.

"4. Dean Sayre's point that the Research Committee be requested to formulate plans for the *stimulation* of research rather than for *regulating* and *ruling* research is well taken, but I suppose the Committee would give such full consideration to its duties involved that it would not attempt to lay down any arbitrary rules that would defend the intention underlying the creation of the Committee."

F. J. Wulling writes (Nov. 1, 1917):

"Council Letter No. 3 at hand. Voting card has already been mailed. Your own statements on pages 10 and 11 clarify the situation. No doubt you are right that no steps were taken to create a standing Committee on Research. The remedy now is the creation of a special committee as you suggest. Of course just as much care should be exercised in the selection for the composition of the special Committee as would be observed in the composition of the standing committee. I suppose the most expeditious method of creating the Committee would be for the Council to request the Council chairman and the Association president to join in the appointing of the Committee. If a better way suggests itself, that would be the one to employ, but I would urge the least possible delay in the establishment of the Committee."

Harry B. Mason writes:

"Apropos of the recent discussion in the minutes of the Council with reference to the Committee on Research, please permit me to express the opinion that Mr. Dewood's suggestion is deserving of consideration, namely, that a chairman of the Committee be appointed and that he be asked to recommend names for the remaining positions of the Committee. A good man like Dr. Edward Kremers, or Professor F. B. Power, of Washington, could be depended upon to make some very intelligent recommendations. Professor Power already represents pharmacy on the Research Committee of the A. A. A. S. and stands right at the front in pharmaceutical research. Dr. Kremers would also command universal respect and there are a number of other men any one of whom could be depended upon to make an efficient chairman and to be of real service in suggesting men for the Committee as a whole.

"There is a great need that pharmacy should get public credit for what it is doing. That is what has helped make medicine so powerful politically. The public, through the popular press, is being constantly informed of the 'wonderful' progress, discoveries and accomplishments that medicine is making. Pharmacy must get into the same line of activity—and this is one very important function of the new Research Committee. The purpose of the Committee is not so much to *do* research itself as to stimulate and utilize it, and in view of the great importance of this Committee it seems vital that the membership should be very carefully selected."

In re matter of Committee on Research, H. V. Army writes:

"We need a committee of ten to handle the matter. As has been pointed out (C. L. No. 3) the Committee must be a special one this year. The suggestion has been made to nominate the five members of the Scientific Section Committee. We had last year a Council Committee on Financial Control of the N. F. whose recommendation that the apparent profits of the N. F. be placed in a Research Fund started the discussion in the final session which is now continued in the Council. This Committee consisted of five members.

"Now, why not take these ten members as a starter, call for at least five other nominees, and have the entire Council vote for ten of the fifteen members?

"There is no gainsaying the fact that this Committee has work of great importance before it and should consist of the best men available.

"There should be no snap judgment in the matter of selection and, on the other hand, the ballot should be a representative one. I should particularly regret if the election should not have at least fifteen nominees from which to make a selection."

L. E. Sayre writes:

"I move, as suggested by Secretary England (Letter 3, p. 11), that a *special* Committee on Research be elected and that it be instructed to outline working plans and to formulate plans

for the stimulation of pharmaceutical research, and report at the next meeting of the Association.

"In this connection, the mover would ask members to recall his remarks regarding this Committee in connection with Dr. Stockberger's. See Letter No. 2, p. 6."

The situation with reference to the Committee on Research is somewhat complicated but easy of solution.

The Committee directed to be established by the final general session of the Association at Indianapolis was to be a standing committee. As such action was in violation of the by-laws of the Association it falls. L. E. Sayre's motion (as above) that a *special* Committee on Research be elected is therefore in order. It is seconded by J. W. England and will be regarded as *Motion No. 7 (Establishment of special Committee on Research)*.

It will save time, also, if the other motions made are voted upon at this time, conditional, of course, upon the passage of Motion No. 7, for the establishment of the special Committee, to which no objection has been made. The three motions referred to (Nos. 8, 9 and 10) are as follows: the motion of these receiving the highest vote will carry:

Motion No. 8 (Selection of Special Committee on Research). Moved by F. J. Wulling, seconded by F. E. Stewart, that the Council chairman and the Association president join in the appointing of the special Committee on Research.

Motion No. 9 (Nomination of Special Committee on Research). Moved by Harry B. Mason, seconded by W. L. Dewoody, that a chairman of the special Committee on Research be appointed and that he be asked to recommend names for the remaining positions on the Committee; to be voted upon by the Council.

Motion No. 10 (Nomination of Special Committee on Research). Moved by H. V. Army, seconded by C. A. Mayo, that there be placed in nomination for election by the Council fifteen nominees, as follows: The five members of the Scientific Section Committee, the five members of the Council Committee on Financial Control of N. F. and five additional nominees to be named by the Council; from these fifteen nominations, the ten members are to be elected.

Motion No. 11 (Election of Members). You are requested to vote on the following applications for membership:

- No. 20. Eugene Von Hermann, 122 S. Michigan Ave., Chicago, Ill., rec. by Wm. B. Day and Wm. Gray.
- No. 21. Julius G. Rapoport, N. W. Cor. Front and Christian Sts., Phila., Pa., rec. by Eugene G. Eberle and J. W. England.
- No. 22. Armin Herrman Hauenstein, 414 S. Main St., Bluffton, Ohio, rec. by Wm. B. Day and Sidney Hauenstein.
- No. 23. Rene Rodriguez, Sarin Hall, Notre Dame, Ind., rec. by R. L. Greene and Emil Reyer.
- No. 24. James Wilburn Patteson, Oak Cliff Pharmacy, Dallas, Texas, rec. by J. M. Fletcher and Harry Deathe.
- No. 25. Lottie Hargreaves, 2725 N. Front St., Philadelphia, Pa., rec. by E. G. Eberle and J. W. England.
- No. 26. Edward R. Hancy, 666 N. 57th St., Phila., Pa., rec. by E. G. Eberle and J. W. England.
- No. 27. Rudolph K. Dorfman, 480 N. Orianna St., Phila., Pa., rec. by E. G. Eberle and J. W. England.

415 NORTH 33RD STREET.

J. W. ENGLAND, *Secretary*.

A. PH. A. COUNCIL LETTER NO. 5.

PHILADELPHIA, PA., November 16, 1917.

To the Members of the Council:

GENTLEMEN:

General Secretary Day writes:

"Following a successful meeting of the Chicago Branch on the 26th of October, and a subsequent meeting of the officers and executive committee of the Branch, we are now ready to go ahead with arrangements for the 66th annual convention. Preparatory to making these arrangements, the following motions are offered:

"1. Moved by C. M. Snow and seconded by W. B. Day, that the 66th annual convention of the American Pharmaceutical Association be held in the week beginning August 12, 1918.

"In selecting this meeting date, we have consulted the Secretary of the National Association of Boards of Pharmacy who was very anxious that the date fixed should not be too near either the first or the last day of the month, and especially not the last, because it interferes with many of the board members, who feel that they must be back at their stores on the first of September. We have also consulted with the Secretary of the National Association of Retail Druggists and, although the date for the annual meeting of that organization has not yet been fixed, he assures us that there will be no conflict.

"2. Moved by W. B. Day and seconded by C. M. Snow that E. N. Gathercoal, of Chicago, be nominated for Local Secretary.

"Mr. Gathercoal has been very active in the Chicago Branch and its secretary for the past six years. He is in a position to keep in close touch with the arrangements for the meeting and will give these arrangements his careful attention."

Motion No. 12 (Approval of Time of Holding the 66th Annual Convention of the American Pharmaceutical Association). Do you favor the motion that the 66th annual convention of the American Pharmaceutical Association be held in the week beginning August 12, 1918?

Motion No. 13 (Election of E. N. Gathercoal as Local Secretary for 1918). Do you favor the election of E. N. Gathercoal, of Chicago, as Local Secretary for 1918?

415 N. 33RD STREET.

J. W. ENGLAND, *Secretary*.

A. PH. A. COUNCIL LETTER NO. 6.

PHILADELPHIA, PA., November 20, 1917.

To the Members of the Council:

The sad news has just been received of the death of Charles Holzhauer, President of the American Pharmaceutical Association, who died suddenly of apoplexy on Monday, November 19, 1917. The funeral services will be held to-morrow, 2.00 P.M., at his late home, 732 High Street, Newark, N. J.

415 N. 33RD STREET.

J. W. ENGLAND, *Secretary*.

COMMITTEE REPORTS

REPORT OF THE GENERAL MEMBERSHIP COMMITTEE.

TO THE PRESIDENT AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The work of the General Membership Committee during the past year was conducted along the same lines as heretofore. Immediately following the convention at Atlantic City a letter was sent to every district and state chairman, urging them to undertake the campaign at once and asking them for suggestions concerning the personnel of their committees for the coming year. Two months later, a second letter was sent to every member of the committee. With this letter were sent stationery and application blanks and the members were advised of their appointment on the new committee and urged to use their efforts to build up the membership of the Association. A third letter was sent out early in the Spring and in this connection the state chairmen were given the names of the members of boards of pharmacy and officers of state associations not already in the membership of the American Pharmaceutical Association and requested to make a special effort to secure the applications of these persons.

The results of the campaign have not been altogether satisfactory, but it must be borne in mind that the many demands made upon the time and funds of every pharmacist by reason of the great war have made it difficult for all organizations to add to their membership, and, perhaps, under these unusual circumstances, we do well to hold our own. During the past year 315 new members have been elected. However, the losses during the same period have been exceptionally heavy, amounting to 291 and cutting the net gain for the year to 24 members. The total membership at the present time is 2697.

NEW MEMBERS ELECTED SEPT. 1, 1916, TO SEPT. 1, 1917, AND GROUPED BY STATES AND MEMBERSHIP DISTRICTS.

| District No. 1. | District No. 2. | District No. 3. | District No. 4. |
|-----------------------|------------------------|------------------|--------------------|
| Connecticut..... 0 | New Jersey..... 8 | Illinois..... 25 | Alabama..... 6 |
| Maine..... 2 | Virginia..... 4 | Ohio..... 4 | Arkansas..... 1 |
| New Hampshire..... 0 | West Virginia..... 1 | Indiana..... 25 | Cuba..... 1 |
| Vermont..... 0 | New York..... 68 | Kentucky..... 3 | Florida..... 3 |
| Massachusetts..... 11 | Maryland..... 1 | Michigan..... 12 | Georgia..... 3 |
| Rhode Island..... 1 | District of Columbia 3 | Wisconsin..... 5 | Louisiana..... 8 |
| — | Pennsylvania..... 22 | — | Mississippi.... 6 |
| Total..... 14 | — | Total..... 74 | Panama..... 1 |
| | Total..... 107 | | Oklahoma..... 3 |
| | | | No. Carolina... 1 |
| | | | So. Carolina.... 0 |
| | | | Tennessee 7 |
| | | | Texas..... 13 |
| | | | — |
| | | | Total..... 53 |
| District No. 5. | District No. 6. | District No. 7. | District No. 8 |
| Iowa..... 4 | California..... 15 | Idaho..... 1 | Brit. America. 1 |
| Missouri..... 8 | Colorado..... 5 | Oregon..... 1 | — |
| Kansas..... 1 | Nevada..... 1 | Alaska..... 0 | Total..... 1 |
| Minnesota..... 6 | New Mexico..... 0 | Montana..... 4 | Philippines.... 1 |
| Nebraska..... 2 | Utah..... 1 | Washington.... 3 | — |
| North Dakota..... 9 | — | — | — |
| South Dakota..... 4 | Total..... 22 | Total..... 9 | Total..... 1 |
| — | | | |
| Total..... 34 | | | |
| Grand total..... | | | 315 |

On the basis of the reports of the Treasurer made in the Council letters since the last meeting, our losses during the year, September 1, 1916, to September 1, 1917, have been as follows:

| | |
|---------------------------------------------------------------|------|
| By suspension..... | 135 |
| By resignation..... | 131 |
| By death..... | 34 |
| — | — |
| Total..... | 300 |
| Less members reinstated..... | 9 |
| — | — |
| Total losses during the year..... | 291 |
| Total new members during the year..... | 315 |
| — | — |
| Net gain..... | 24 |
| Total membership at the close of the Indianapolis meeting.... | 2697 |

Respectfully submitted,

WM. B. DAY,

Chairman of the General Membership Committee.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman*; G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio*.

Editorial Office: 253 Bourse Building, Philadelphia, Pa.

TEN YEARS OF THE FOOD AND DRUGS ACT.

Ten years of enforcement of the Food and Drugs Act of June 30, 1906, are reviewed in the current annual report of the Bureau of Chemistry, U. S. Department of Agriculture.

The general effect of the Food and Drugs Act may best be estimated, says the report, by considering its effect upon food and drug control by the States; upon development of the food and drug industries and by the principal abuses that have been corrected. But to illustrate the scope of the work through figures and facts the report points out that more than 6,000 prosecutions have been terminated in the courts in the first decade of the Act; that manufacturers have been cited at hearings more than 40,000 times, that many thousands of factory inspections have been made, and that more than 750,000 shipments of domestic or imported food and drugs have been examined.

One consequence of the enactment of the Food and Drugs Act was to encourage similar legislation in many of the States, the purpose of which is to control local traffic in food and drugs which, since no interstate commerce is involved, are not subject to the Federal law. The Federal law supplements the State law in this respect and now most of the States have similar laws. In the beginning the confusion and apparent conflict between local and Federal laws and administration of laws not only made it difficult for the two sets of officials to co-operate, but often made it necessary for manufacturers to make special preparations for shipment to certain States at extra cost, the extra cost being passed on to the ultimate consumer. This evil has been remedied to a considerable extent by the organization of two agencies which in a large measure have removed some of the difficulties arising from the conflict of Federal and State jurisdiction. These agencies are: (1) The Joint Committee on Definitions and Standards, and (2) The Office of Cooperative State and Federal Food and Drug Control.

Frequently, the report says, the Bureau is appealed to by the industries to compel the cessation of unfair practices and to encourage the standardization of the products, when the industry is incapable by itself of bringing about these results. The Act is described as one of the influences which have helped to draw competitors together into associations like the guilds of the middle ages, although the modern associations lack the special privileges which the ancient guilds often enjoyed.

Some of the associations, understanding the value of constructive work, now devote considerable money to experimental research into technical problems. Thus is made available to the small manufacturer scientific assistance ordinarily beyond his reach. Since the Bureau of Chemistry always has regarded it as its duty not merely to report violations of the law but also to prevent accidental violations, through constructive work in tending to improve methods of manufacture, it coöperates actively with such associations of manufacturers. Such coöperation, by the various Government agencies, says the report, is bound to exert the profoundest influence on the country's industrial and social development.

The best evidence, according to the report, that many of the abuses formerly occurring in the food industry have ceased is found in the fact that the violations of the Food and Drugs Act observed to-day are hardly comparable, in degree, with those in the first few years following the enactment of the law.

MILITARY ORGANIZATION.

A company, now, is composed of 250 men, commanded by a captain.

A battalion consists of four companies, commanded by a major.

A regiment consists of three battalions, a machine gun company and a headquarters company band, commanded by a colonel.

A brigade is composed of three regiments, commanded by a brigadier-general.

A division consists of three brigades of infantry, one brigade of artillery, one regiment

of cavalry, a battalion of engineers, an air squadron, a battalion of signal troops, and a motor train and wagons.

With a division there are nearly 10,000 animals, and an army of attendants, besides 600 motor trucks and their drivers, a dozen airplanes, four dozen ambulances and three dozen automobiles, 75 big guns, and about 300 other carriages.

NEW YEAR'S DAY.

The Robertson-Bradshaw Company has issued a New Year message worth repeating and so we publish it.

New Year's Day means another chance.

Thank God there's always another chance.

Whoever said that Opportunity knocks once, meaning once only, at every man's door, was fooling you. Don't believe it. For opportunity comes around to your door every morning, regularly as the milkman.

We don't have to live our lives all at one stretch; if so, WHO would endure a week? But our lives are allotted to us in day by day parcels. And between every two days of life we are dipped in death.

Every morning is a resurrection. And New Year's day is "the Great Gittin' Up Mornin'." The Past is sloughed off. Its mistakes we bury. Its successes will not do for next year. Into the dump with all of 'um!

DESTINY on New Year's Morning is dealing us a New Hand. Sit up, gentlemen! Smile, and try again! The game goes on. Better luck this year! Come! We'll try again.

And may God bless us all!

Dr. J. H. Beal has received the endorsement of the National Association of Retail Druggists for place on the Advisory Commission to the National Council of Defense. At a meeting of the chairmen of six organizations represented in the National Drug Trade Conference a like endorsement was unanimously given. It is not unbecoming to say that no one would be more acceptable to the drug trade of the country, and it is to be hoped that he will consent to accept. In this connection it should be said that few, if any, have and do give as much of their time for the benefit of pharmacy as Doctor Beal.

Cyrus P. Walbridge, president of the J. S. Merrill Drug Company of St. Louis, recently suffered a stroke of paralysis, from which he is recovering. Mr. Walbridge was vice-president of the St. Louis World's Fair and prominent

in political and civic affairs. While a member of the American Pharmaceutical Association, he has been more actively interested in the National Wholesale Druggists' Association, of which he was president in 1898.

Prof. C. T. P. Fennel, dean of the Cincinnati College of Pharmacy, has been appointed professor of Materia Medica in the University of Cincinnati.

Kenneth B. Hay, son of deceased member Charles La Mar Hay, DuBois, Pa., a second-year student of the Philadelphia College of Pharmacy and who enlisted in the Pennsylvania Hospital Unit No. 10, died in France on Thanksgiving Day.

Pharmacist's Mate Elzer Harwell, whose home is at Scotts Hill, Tenn., and one of the officers and crew of the U. S. Destroyer "Fanning" was given honorable mention not only by the commander but also by the British commander-in-chief, in the destruction of a German submarine November 24. The special act of bravery for which he was commended was for jumping overboard and saving a drowning German.

Mallinckrodt Chemical Works celebrated the fiftieth anniversary of the founding of its business, December 19, by giving a banquet at the Mercantile Club, Saint Louis. It was one of the most notable events occurring in the local drug and chemical trade circles for a number of years. About 150 guests were present, including the representatives of the various branches, heads of departments, etc.

Mr. L. G. Blakeslee presided as toast-master and interesting and appropriate remarks were made by Messrs. Edward Mallinckrodt, Sr., President of the company; Edward Mallinckrodt, Jr.; O. L. Biebinger, Secretary; H. T. Jarrett, Manager of the New York house; L. G. Ryan, Manager of the Canadian house; J. H. A. Fink, Export Department, New York City; H. W. Huning, who has been with the house since its organization; also by Messrs. Dronberger, Appleton and other representatives.

One of the most important features of the evening was the presentation to Mr. Edward Mallinckrodt, Sr., on the part of the employees, of a beautiful bronze tablet or medallion prepared from one of his recent photographs. The presentation was made by Mr. Blakeslee with very appropriate and impressive words, and Mr. Mallinckrodt's response was largely in the way of a review of the leading events in the history of the company.

OBITUARY.

IN MEMORY OF CHARLES HOLZHAUER.

*(Continued.)*RESOLUTIONS ADOPTED BY THE EXECUTIVE
COMMITTEE OF THE NATIONAL ASSOCIATION
OF RETAIL DRUGGISTS.

WHEREAS, it was the will of Almighty God to remove from our midst Charles Holzhauer, President of the American Pharmaceutical Association; be it

Resolved, That, on behalf of the officers and members of the National Association of Retail Druggists, we do hereby extend our deep sympathy and express our profound regret to the officers and members of the American Pharmaceutical Association and the family of our distinguished deceased fellow pharmacist.

(Signed) W. H. COUSINS, *President*.

SAMUEL C. HENRY, *Secretary*.

JAMES F. FINNERAN,

Chairman Executive Committee.

Chicago, December 8, 1917.

EDWARD A. SAYRE.

The sudden death of President Charles Holzhauer has shocked the entire profession. Since he joined the American Pharmaceutical Association in 1873, he has been a consistent member, rarely missing a meeting. He enjoyed the gatherings of so many kindred spirits. He was a self-made man; he was a good listener; he heard what others had to say, sometimes enjoying the debate, but regretting the waste of time on matters of little importance. If he spoke, it was when a lull came, and then in a few quiet words he showed that he had digested what had been said and usually he had the last word. His was a judicial mind. Every honest pharmacist has lost a friend, he was my life-long friend, more like a brother; my loss is the greater.

WILLIAM B. DAY.

Coming so soon after the Indianapolis meeting, where President Holzhauer took so active a part and appeared so well and vigorous, his death was a great shock to me. The American Pharmaceutical Association and pharmacists generally have lost a most loyal friend and advocate. Charles Holzhauer's labors in his chosen profession were fruitful but by no means represented the full measure of his activities. A public-spirited citizen, he gave to his city the same loyal support

and the same endeavor to promote the welfare of its citizens that made him a conspicuous exponent of what is best in pharmacy. The Association can ill afford to lose his services. His death breaks another link in the chain of those earnest workers who did so much for the upbuilding of the American Pharmaceutical Association and for pharmacy.

J. H. BEAL.

I was more deeply grieved than I can state to learn of the sudden death of President Holzhauer.

President Holzhauer was a fine type of American pharmacist. His sturdiness, manliness and straightforward methods endeared him to the membership of the American Pharmaceutical Association to which for so many years he rendered loyal and valuable services.

Mr. Holzhauer never put himself in the way of honors. The various offices which came to him were unsought, and were bestowed because of his known faithfulness in the discharge of every duty entrusted to his care.

His election to the presidency of the American Pharmaceutical Association was a just recognition of his character and services, and there is not a member who does not feel a sense of personal loss in his death, and who does not grieve that he could not have been spared at least to round out his year of administration in the office which he regarded as the highest of all honors.

H. V. ARNY.

The Association has lost more than a president, it has lost a faithful, devoted member. Pharmacy has lost more than a careful druggist, she has lost a leader. Mr. Holzhauer's personal acquaintances have lost more than a pleasant companion, they have lost a good counsellor, a generous associate, a friend as true as steel.

C. T. P. FENNEL.

The news of the death of Charles Holzhauer was a shock indeed. I have known him for over thirty years and from the first day of friendship was strongly attracted to him by his kindly disposition, "open and above board" character, sound judgment on the ideals of American pharmacy. We have again lost one who was a credit to himself and family, citizenship and society and to American pharmacy.

L. E. SAYRE.

The death of President Charles Holzhauser is another sad blow to the band of faithful workers in our Association and I cannot tell you how much and how deeply I feel the loss of this good man whose untimely death has left the presidency of the Association vacant.

JOHN F. FISCHNAR.

John F. Fischnar died suddenly at his residence at 6920 Perry Ave., Chicago, Nov. 12, 1917. He was born at New Ulm, Texas, in 1878. His education was obtained through his own efforts largely and under adverse circumstances. He entered the Northwestern University School of Pharmacy in 1890, graduating with the degree of Pharmaceutical Chemist and a high record for scholarship.

In 1904 he was happily married to a classmate in the Pharmacy School, Miss Nina Piper, who survives him. In 1905 he purchased a drug store at Sixty-ninth St. and Wentworth Ave., and conducted it successfully to the time of his death. He was a member of the faculty of the Northwestern University School of Pharmacy for about ten years as an instructor in the Pharmacy Department where he was highly esteemed by his colleagues and greatly respected by his students.

He became a member of the American Pharmaceutical Association in 1905 and was elected a vice-president of the Chicago Branch of that Association for 1917. He was also a member of Normal Park Masonic Lodge No. 797 and of the Chicago Retail Druggists' Association. He was a man of sterling character and very steadfast in his friendships. The stores in the neighborhood were closed during the funeral services showing the regard in which he was held by his business associates.

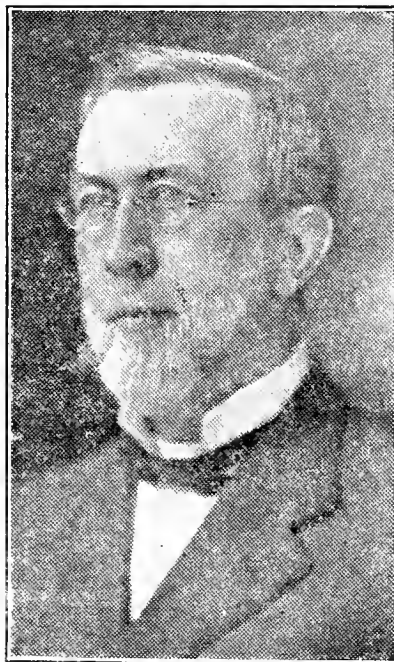
M. A. MINER.

CHARLES T. GEORGE.

Charles Theodore George, pioneer druggist of the West End, Harrisburg, Pa., and for many years secretary of the Pennsylvania Pharmaceutical Examining Board, died at his home December 26th.

The deceased was born in Homberg, Landgraviate of Hesse, Germany, February 2, 1845, and came to America when a lad of six years. He was educated in the public schools of Harrisburg, after which he entered the drug business and soon after reaching his majority opened a drug store on his own account. He was a member of the Philadelphia College of

Pharmacy, an honorary member of its Alumni Association and also of the University of Western Pennsylvania. For many years he was a dominating figure among the druggists of Pennsylvania, and stood for high ideals in his profession.



CHARLES T. GEORGE

He was a member and president of the Harrisburg Board of School Directors, active in Masonic and church circles. In the former he had received nearly all of the degrees in both York and Scottish Rite bodies; in the latter, he had helped in the organization of the Bethlehem Lutheran Church, of which he was a life-long member.

Mrs. George died about four years ago, and he is survived by one daughter, Mrs. Raymond E. Reed, two grandchildren and two great-grandchildren.

Mr. George joined the American Pharmaceutical Association in 1873.

AARON B. CALISHER.

Aaron B. Calisher, treasurer of the Manufacturing Perfumers' Association of the United States, died December 10, at his home in New York City, aged sixty years. He was senior member in the firm of Calisher & Co., and was a controlling factor in the business of Oakley & Co.

JOURNAL OF THE SOCIETIES AND COLLEGES.

WAR COUNCILS COMMITTEE OF THE CHAMBER OF COMMERCE OF THE UNITED STATES.

The above-named committee met in Washington December 12th; the appointees from the American Pharmaceutical Association were Messrs. S. L. Hilton, A. R. L. Dohme and J. H. Beal. The object of the committees is to give the Government the benefit of the suggestions and advice of the industries involved. The several associations of the drug trade represented were the American Pharmaceutical Association, the National Association of Retail Druggists, the National Wholesale Druggists' Association, the American Association of Proprietary Medicines, the American Drug Manufacturers' Association and the National Association of Pharmaceutical Chemists. At a meeting of the latter bodies it was decided, in view of the request by the War Councils Committee, that one organization represent the drug industries, that the National Drug Trade Conference be designated. A meeting has been called to meet in Baltimore, January 3rd. Dr. J. H. Beal was named as the unanimous choice for general representative and as the Government expert to work with the Council of National Defense. At this writing it was not decided whether he could accept the appointment.

THE NATIONAL PHARMACEUTICAL SERVICE ASSOCIATION.

Three hundred and forty-five new members were added to the roll of the National Pharmaceutical Service Association at its seventh monthly meeting held at the Philadelphia College of Pharmacy, Tuesday evening, December 11th.

Dr. Henry P. Hynson of Baltimore, who had been invited to speak on the organization of a Pharmaceutical Corps in the Army, stated that there were two ways open to pharmacists for securing such a corps. One was to induce the medical profession and the Surgeon-General's office to favor such a measure, and the other was to have a bill similar to the Edmonds Bill passed by Congress over the head of the Surgeon-General. Dr. Hynson told of his connection with the Rotary Clubs and of the coöperation that could be afforded the movement for the passage of the Edmonds Bill by Rotarian pharmacists. Dr. Hynson said that he would make it his first "order of business" to secure the coöperation of Rotary Clubs

throughout the United States in behalf of the Edmonds Bill. He also mentioned the desirability of having the support of the National Drug Trade Conference in pushing this measure through Congress.

Mr. Caswell A. Mayo of New York, who had also been invited to speak on the Edmonds Bill, made a very interesting address based on his experiences in the various camps which he has had an opportunity to visit. He declared that it was absolutely necessary for the welfare of our Army to have adequate pharmaceutical service and urged that subscriptions be asked for so as to swell the funds of the N. P. S. A. sufficiently to be able to carry on an active propaganda in behalf of the measure. It was moved, seconded and carried that the secretary send out letters asking for contributions for this work and it was also decided that the Executive Committee be instructed to prepare literature telling of the work of the N. P. S. A.

Upon motion by Mr. Eberle it was decided to ask the National Drug Trade Conference and other associations for their active coöperation in this work.

A hearty vote of thanks was given Mr. Mayo and Dr. Hynson for their attendance at the meeting and for the messages which they had brought.

1918 N. A. R. D. CONVENTION AT NEW ORLEANS.

The Executive Committee of the National Association of Retail Druggists at their recent meeting in Chicago selected New Orleans, Louisiana, the place for the 1918 meeting of the association.

AMERICAN METRIC ASSOCIATION.

The annual meeting of the American Metric Association was held at the University of Pittsburgh, December 28th and 29th. Among those who presented papers and addressed the body were—George W. Perkins of New York, J. W. McEachern, of the Crane Company, Chicago; Dr. William C. Wells, chief statistician of the Pan-American Union; Henry D. Hubbard, of the United States Bureau of Standards; and Dr. John D. Brashear, past president of the American Society of Mechanical Engineers.

AMERICAN CHEMICAL SOCIETY.

A fund has been started by the American Chemical Society for a suitable memorial

to Joseph Priestley, who came to Philadelphia after being ordered out of England; he later moved to Northumberland, Pa., where he died and is buried.

The committee has made the following recommendations:

1. That a bust portrait of Joseph Priestley be secured; that this be retained by the American Chemical Society, but be deposited as a loan in the National Museum in Washington.
2. That a gold medal be awarded at intervals of probably more than one year for superior achievement in chemical research, the award to carry with it the requirement that the recipient shall deliver an address before the general meeting of the society at the time of the presentation or at such other time and place as the council of the society may direct.

BALTIMORE DRUG EXCHANGE.

The Baltimore Drug Exchange held its annual meeting December 13th. Dr. A. R. L. Dohme spoke on pharmacy, past, present and future, outlining the changes that had taken place, and James E. Hancock also spoke. The following officers were elected:

President, A. E. Mcaly; *First Vice-President*, J. Emory Bond; *Second Vice-President*, James E. Hancock; *Secretary*, George M. Armor; *Treasurer*, H. H. Robinson; *Executive Committee*, W. M. McCormick, and Dr. A. R. L. Dohme.

THE NEW YORK GERMAN APOTHECARIES SOCIETY.

The German Apothecaries Society of New York has celebrated its sixty-sixth birthday; A Christmas meeting was held December 27th, to which the members and their families were invited and a regular meeting of this time-honored organization was held January 3rd. The special meetings are social and invariably successful and enjoyable.

MASSACHUSETTS COLLEGE OF PHARMACY.

A service flag, containing thirty stars, was unfurled at the Massachusetts College of Pharmacy on Monday noon, November 26th. Short addresses were made by President Herbert Packard and Dean Theodore Bradley. Instructor Florin J. Amrhein read a list of the names of those represented by the stars on the flag which was unfurled by Bertha Sugden, Ph.G., a graduate student at the College. The thirty stars represent one officer of the College, five members of the class of 1917 who went directly from the College into military

or naval service, and twenty-four undergraduates. About the same number of graduates of the College are also in the service, but stars are not included for them on this flag, which represents the present student body.

THE COLLEGE OF PHARMACY, UNIVERSITY OF MICHIGAN.

The Pharmacy Faculty of the College of Pharmacy, University of Michigan, in an endeavor to do its bit to support the Edmonds Bill, recently drew up the following petition, a copy of which was sent to all United States Senators and Representatives from Michigan:

"We, the undersigned, wish to call your attention to the following reasons why we urge your support of the Edmonds Bill known as Number H. R. 5531, which will be brought up in the December session of Congress, and which is intended to increase the efficiency of the Medical Department of the United States Army, to provide a Pharmaceutical Corps in that Department, and to improve the status and efficiency of the Pharmacists in the Army:

"First. It will increase the efficiency of the Medical Corps of the U. S. Army by supplying a place for specially trained men who can coöperate with physicians and surgeons.

"Second. The enlistment of the professional services of properly qualified pharmaceutical chemists will enable physicians and surgeons to devote more of their time to the diagnosis and direction of the care of sick and wounded.

"Third. It will give the profession of Pharmacy a standing in the Medical Corps, and will afford an opportunity for the promotion of pharmacists for special services which they may render, and place the profession on the same basis as that already established for Dentistry and Veterinary practice.

"Fourth. Not only as a war measure, but in the development of the U. S. Army in times of peace, there must of necessity be developed a closer association between pharmacists and the medical profession."

It is interesting to know that President Hutchins' name headed the list of signers, and was followed by the names of the Pharmacy Faculty, all the druggists of Ann Arbor, and the students of this College.

PHILADELPHIA COLLEGE OF PHARMACY.

The Philadelphia College of Pharmacy has a flag of 153 stars displayed in the college library and designates that from among the recent graduates and student body that number have enlisted in the Government service. With few exceptions the enlistments were voluntary and so far as known, none eligible for service endeavored to become exempt from the draft.

ST. LOUIS COLLEGE OF PHARMACY.

The following resolutions were passed by the Board of Trustees at the November meeting, and a copy ordered sent to the pharmaceutical press:

PROFESSOR CHARLES CASPARI, JR.

The St. Louis College of Pharmacy records with deep sorrow the death of Professor Charles Caspari, Jr., one of America's foremost and distinguished pharmacists, teachers and pharmaceutical writers.

We recognize the extended and self-sacrificing service which he has rendered to our whole profession with the deepest feeling of gratitude and we rejoice in the sublime record made by him and in the exemplary life he has led.

Among his numerous friends, the St. Louis College of Pharmacy desires to pay its tribute of respect and esteem to his memory.

Be it therefore,

Resolved, That the St. Louis College of Pharmacy express to the family of our deceased friend and co-laborer, its deepest sympathy in their bereavement.

The College joins the pharmacists of America in honoring the memory of Charles Caspari, Jr.

The Committee,

FRANCIS HEMM,
OTTO A. WALL,
H. M. WHELPLEY,
F. W. SULTAN,
AMBROSE MUELLER.

UNIVERSITY OF WASHINGTON.

DEPARTMENT OF PHARMACY.

The Pharmacy Department of the University of Washington is "doing its bit" by encouraging farmers to collect digitalis leaves. Instructions have been set out relative to proper collection, drying and packing. If the collectors are uncertain regarding the drug, they are advised to send samples to the University for identification. In this way considerable digitalis has been harvested.

THE PHARMACIST AND THE LAW.

THE RETAIL LIQUOR DEALERS' LICENSE.

As far back as 1874, Geo. H. Schaefer, an honorary president of the American Pharmaceutical Association, advocated that retail druggists be not classed with liquor dealers. The matter was brought up at the Louisville meeting of the A. Ph. A. in the year named, and he believes that the time is most opportune now to do away with a classification which is entirely unjust.

PENNSYLVANIA BOARD OF PHARMACY GIVES NOTICE OF CHANGES IN THE STATE DRUG LAW.

The Pennsylvania Board of Pharmacy has sent out notices and comments on several sections of the amended State drug law.

Section 3 of the Drug Act has been amended and reads as follows:

"That for the purpose of this act an article shall be deemed to be adulterated.

"First. If a drug is sold under or by any name recognized by the ninth revision of the Pharmacopoeia of the United States, the fourth edition of the National Formulary, or the American Homeopathic Pharmacopoeia, it differs from the standard of strength, quality, or purity as determined by the test or formula laid down in the ninth revision of the Pharmacopoeia of the United States, the fourth edition of the National Formulary, or the American Homeopathic Pharmacopoeia; provided that no drug defined in the ninth revision of the Pharmacopoeia of the United States, the fourth edition of the National Formulary, or the American Homeopathic Pharmacopoeia except official preparations of opium, iodine, peppermint, camphor, ginger and ethyl nitrite, shall be deemed to be adulterated, under this provision, if the standard of strength, quality, or purity be plainly stated, in juxtaposition with the official standard of strength, quality, and purity, upon the bottle,

box or other container thereof, although the standard may differ from that determined by the test or formula laid down by the ninth revision of the Pharmacopoeia of the United States, the fourth edition of the National Formulary, or the American Homeopathic Pharmacopoeia.

"Second. If its strength or purity fall below the professed standard or quality under which it is sold."

Section 4 has been amended to read that an article shall be deemed to be misbranded, "If its package or label shall bear or contain any statement, design or device regarding the curative or therapeutic effect of such article, or any of the ingredients or substances contained therein, which is false or fraudulent."

All distributors of drug products are requested by the board to join in making it a rule of the trade to send United States Pharmacopoeia and National Formulary products on all orders from pharmacists for drugs under official titles with no other qualifications as to quality.

A careful study of Section 3, of the Drug Act, as amended, will show that both the standard of strength, quality and purity possessed by the article which differs from the official standard, and its official standard of strength, quality and purity must appear upon the label, side by side, of every such article sold, or offered for sale in Pennsylvania.

U. S. COURT UPHOLDS RIGHT TO INSERT DESCRIPTIVE MATTER IN MEDICINE CARTONS.

United States Circuit Court Judge Ward, with the concurrence of Judges Mayer and Hand, has ruled against the appeal of E. Fougère & Co. for an injunction restraining Attorney-General Lewis and District Attorney Swann (New York) from enforcing the Section 1142-a of the penal law in regard to the advertising of remedies for certain named diseases, by the enclosure of reading matter, or by advertising in any other manner.

In his decision, Judge Ward cites the fact that the medicines sold by the defendants which come under this provision are accompanied by statements in regard to the diseases they are intended to cure, together with the dosage, either on labels, pasted on the container, or bottle, or in a circular folded inside the container. The medicines are also advertised in newspapers and medical journals. He then continues:

"We cannot assume that the Legislature intended to require proprietary medicines for the diseases mentioned to be sold without any indication of the diseases for which they were intended, or without any direction as to the doses to be taken, nor do we think that a circular inserted in the container going, not to the public generally, but only to the purchaser, is an advertisement within the meaning of the act. Such a construction of the ordinary directions of the family physician on a bottle of medicine would be regarded as absurd."

The decision thus rules that the law of the State of New York does not prohibit the sale of remedies for certain diseases, named in the statute, even though dosage, name of remedy and other descriptive matter are cited on labels, on containers, or in circulars enclosed within the containers.—*Paint, Oil and Drug Reporter*.

STATE PROTECTION OF TRADE-MARKS.

Trade-mark protection by the several states as well as by the Federal government is discussed in *Popular Mechanics Magazine* by H. H. Windsor, the editor, who says in part:

Within the last two years several corporation lawyers making a specialty of trade-mark practice have placed increasing importance on the subject of protection of trade-marks by filing individual state applications for the same in almost every state in the United States, in addition to seeking also the protection afforded under the Federal Trade-Mark Act.

Litigation concerning trade-marks is of unusual character in that there does not seem to have been any uniformity of decision under the Federal Trade Act, due to the fact, partly, that the circumstances of the different cases are not similar. Therefore, the decision of the United States Supreme Court in the near future, in what is known as the "United Drug Company trade-mark case," is awaited with interest.

A few years ago, H. A. Jaynes was sued as agent of the United Drug Company by one Ellen M. Regis, who desired to prevent the use of the word "Rexall." The Regis woman had established the word "Rex" as a trade-mark under the state statute of Massachusetts of 1895, by filing her trade-mark in a proper application with the Secretary of State, in

accordance with the laws of the commonwealth, on Sept. 27, 1898, and the registration was given the official number 673.

The validity of the trade-mark "Rex" and the title thereto of the said *Regis*, was twice adjudicated by the Supreme Court of the State of Massachusetts after strenuously contested and protracted litigation. In the last appeal, the Massachusetts Supreme Court sustained the contention of the lower courts that the word "Rexall" was an infringement of the

word "Rex." Later, the United Drug Company paid \$100,000 for an assignment of the rights of the *Regis* mark.

It must be remembered that all one can claim under the Federal act is an "interstate trade-mark." Surely all the incidents of a common-law mark are better perfected when the state application for the registration of a mark has been made to and the right issued by the Secretary of State.—*Drug and Chemical Markets*.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus.

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo.

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESSES SINCE NOV. 18, 1917.

NITARDY, F. W.

From Scholtz Drug Co., Denver, Colo.

To 1418 Cherokee St., Denver, Colo.

WILLIAMSON, H. H.

From U. S. Naval Training Station, Great Lakes, Ill.

To U. S. S. *Susquehanna*, c/o Postmaster, New York, N. Y.

JORGENSEN, ARTHUR

From 1026 B. Shotwell St., San Francisco, Cal.

To 781 Castro St., San Francisco, Cal.

HILTERBRAND, E. A.

From 4011 Colonial Ave., Dallas, Texas.

To 1014 W. 18th St., Oklahoma City, Okla.

KUENZIG, P. A.

From 316 Atlantic Ave., McKeesport, Pa.

To 121 Spencer Ave., Carriek, Pa.

MAISEL, JOSEPH

From 860 Fox St., New York, N. Y.

To 989 Amsterdam Ave., New York, N. Y.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service for the seven days ended December 5, 1917.

Phar. F. J. Harty. Relieved at the San Francisco Quarantine Station. Proceed to Cincinnati, Ohio, for duty in the studies of the pollution of navigable streams. Nov. 30, 1917.

Phar. B. E. Holsendorf. Relieved at San Juan, P. R., Quarantine Station. Proceed to Philadelphia, Pa., for duty. Nov. 28, 1917.

Phar. F. A. Southard. Relieved at Cincinnati, Ohio. Proceed to the San Francisco Quarantine Station for duty and assignment to quarters. Nov. 30, 1917.

Phar. J. A. Wolfe. Proceed to Atlanta, Ga., on special temporary duty. Dec. 3, 1917.

Phar. M. B. Berkowitz. Relieved at Norfolk, Va. Proceed to San Juan, P. R., Quarantine Station for duty and assignment to quarters. Nov. 28, 1917.

Asst. Epidemiologist T. H. D. Griffiths. Proceed to Alexandria, La., on special temporary duty. Dec. 3, 1917.

Sanitary Engineer J. K. Hoskins. Directed to supervise malaria work at Macon, Ga., and Montgomery, Ala. Dec. 4, 1917.

Sanitary Engineer R. E. Turbett. Proceed to Little Rock, Ark., on special temporary duty. Dec. 1, 1917.

Sanitary Engineer H. H. Wagenhals. Directed to supervise anti-malaria work, Augusta and Atlanta, Ga. Dec. 4, 1917.

Prof. C. W. Stiles. Proceed to Augusta, Ga., for duty in the prevention of the spread of contagious and infectious diseases. Nov. 27, 1917.

Prof. E. B. Phelps. Proceed to Portsmouth, Va., for conference with local authori-

ties in regard to selection of water supply. Nov. 21, 1917.

Phar. Henry Gahn. Relieved at Quarantine Station, Pensacola, Fla. Proceed to Norfolk, Va., for duty. Nov. 24, 1917.

Sanitary Bacteriologist C. P. Butterfield. Proceed to Manhattan, Kansas, for duty in laboratory studies in connection with the sanitation of extra-cantonment zones. Nov. 26, 1917.

BOOK NOTICES AND REVIEWS.

Essentials of Volumetric Analysis. An introduction to the subject, adapted to the needs of students of pharmaceutical chemistry. Third edition, rewritten and enlarged. By Henry W. Schimpf, Ph.G., M.D. John Wiley and Sons, Inc., publishers, New York. Cloth, 366 pp. Price, \$1.60 net.

The exhaustion of the second edition and the revision of the United States Pharmacopoeia have necessitated this third edition of Professor Schimpf's "Essentials of Volumetric Analysis." Many additions have been made, among them methods for assays of mercuric salts, phosphates and hypophosphites by means of standard sulphocyanate solution; processes for assays of chlorates, perborates, chloral, acetone, resorcinol, phenylsulphonates, arsenates, and alkali cacodylate are also included. The appendix contains descriptions of the most frequently employed indicators.

While primarily the book is intended for pharmacy students in the chemical laboratory, it is well adapted as a reference book for pharmacists when making determinations of the strength and purity of chemicals employed in dispensing. As far as the value to students is concerned much more might be said of the book with special favorable comment on the concise and clear presentation of the subject matter.

The book is divided into twenty-two chapters. A typical assay is explained and where possible and practicable other substances, in which the cited method may be employed, are tabulated. There are quite a number of other tables: for determining alcohol percentages from specific gravity; of factors for temperature and barometric corrections, etc.

Many of the changes and additions have been necessitated by the revision of the U. S. Pharmacopoeia; the pharmacopoeial term "mil" is employed instead of Cc.

The favor which the work has gained in its prior issues will doubtless be accorded this revised and enlarged edition.

E. G. E.

Everyman's Chemistry. The Chemists' Point of View and His Present Work Told for the Layman by Ellwood Hendrick, Harper & Brothers, New York. Harpers Modern Science Series, 346 pages with an appendix and an index, cloth. Price, \$2.00.

The author's preface states that "the second decade of the twentieth century has brought to the average man a general, if vague, realization of the tremendous importance of chemistry and its application in actual life. I think this has never been felt acutely before, and yet it has seemed to me that the same average man is not very well provided with a work that he could read and understand easily and at the same time get a chemical view of things."

In the object of bringing this about, the writer has succeeded. In the interesting discussion of chemical subjects there is some matter that could perhaps have been omitted from this book without detracting from its value, and the chemistry of a number of familiar things might have been advantageously included; thus, for example, no reference is made to baking powder, cream of tartar, citric acid nor gelatin, all of them of importance in the chemistry of the kitchen.

The author brings an attractive literary style to the discussion of chemical subjects, and many of our readers will recall some of the daily articles in the *New York Times* by Mr. Hendrick during the chemical exposition held in New York last September, and which aroused a general interest in the progress and application of chemistry in the industries. While in no sense a treatise on chemistry nor a laboratory guide the book will interest even the chemists and will give the laymen a more correct understanding of chemistry than conveyed by magazine articles and will bring them more in line with the chemist's viewpoint.

E. G. E.

JOURNAL ANNOUNCEMENTS.

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For several months past a request has appeared in the JOURNAL that members indicate whether they desire a cut of the insignia of the Association with name "Member" above, as appended, for their Prescription Blanks. A sufficient number of members have signified their interest and therefore these cuts may now be had by addressing the JOURNAL Office as below.

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THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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PHILADELPHIA

PENNSYLVANIA

JAMES HARTLEY BEAL

URBANA, ILL.

President of the American Pharmaceutical Association (1904); General Secretary (1911); First Editor JOURNAL A. PH. A.; Chairman of the Council A. Ph. A. for a number of years; Chairman of the Board of Trustees U. S. P. IX; President of the National Drug Trade Conference, etc.



JAMES H. BEAL

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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NO. 2

JAMES HARTLEY BEAL.

Among those who are active workers in the pharmaceutical field of to-day there are probably not many who have devoted their lives more completely and unselfishly to the best interests of that calling than Prof. James Hartley Beal, whose career began September 23, 1861, as the eldest son of Jesse and Mary McKnight Beal, of New Philadelphia, Ohio. At an early age he became his father's frequent companion on long walks in the woods and fields, and to this youthful experience he has often attributed his lasting interest in plant life and love of nature. It is still a source of pleasure to him to recall these memories of his boyhood days, during which the foundations were laid not only for the acquirement of useful knowledge and of systematic habits of study which were invaluable in after years, but for a sympathetic and life-long comradeship between father and son.

His early education was obtained in the public schools of New Philadelphia and at Jewett, Ohio. At about the age of seventeen years he began his first regular work as a drug clerk, at Uhrichsville, Ohio, and later continued for several years at Akron, Ohio. While at Akron he also carried several branches of study under tutors in Buchtel College. In 1882 he entered the School of Pharmacy of the University of Michigan, where he was able to carry the regular work of that department and also to pursue studies in other departments of the University. After a year's work at the University of Michigan, he completed a literary course at Scio College (since merged with Mt. Union College, Alliance, O.). After graduating at Scio he returned to the University of Michigan for a year's work in law and philosophy, and then entered the Cincinnati Law School, from which he graduated with "honorable mention" in 1886, and the following September was married to Fannie Snyder Young, of Uhrichsville, O. He soon after accepted a position as instructor in Scio College and in 1889 was given the chair of pharmacy and chemistry. Some years later he was elected to the chair of applied pharmacy in the Pittsburgh College of Pharmacy, and thereafter divided his time between the two institutions. In 1902 the Scio College of Pharmacy and Chemistry was established on an independent basis, with Prof. Beal as Dean, and in 1908 it was consolidated with the Pittsburgh College of Pharmacy.

Prof. Beal became a member of the American Pharmaceutical Association in 1892, and has since served in various capacities as Secretary, and then as Chairman of the Section on Education and Legislation, President of the Association (1904-5), Chairman of the Council, Chairman of the Conference of Pharmaceutical Faculties, etc., besides serving on various important committees. His first paper, on "The Definition of a Poison," was presented at the Asheville, N. C., meeting in 1894, and was rejected by the Committee on Publication. Since that date he has contributed numerous papers to the pharmaceutical press and to the

annual meetings of the A. Ph. A., of which he has so long been an active and loyal member.

In 1900 Prof. Beal was elected a member of the U. S. P. Board of Trustees, and has served as chairman of that body since 1910. In 1911 he was elected General Secretary of the American Pharmaceutical Association and Editor of the official Journal of that organization, the first number of which appeared in January, 1912. The difficult task of launching a new publication and at the same time performing the onerous duties of General Secretary—which at that time included the general supervision of the publication and sale of the National Formulary—together with the care of some considerable private interests, lead to the almost inevitable result of failing health, which compelled his resignation from the combined offices June 1, 1914. A few months later, Prof. Beal removed to Urbana, Ill., where he has a beautiful home and, although still a very busy man, has time to enjoy life more fully than during those years when business obligations claimed so large a portion of every day and often extended far into the night.

As stated in a preceding paragraph, Prof. Beal has always been a lover of nature and likes to "escape and be free in the joy of the open air." For many years it has been his custom to spend a few weeks each summer, in the company of congenial spirits, camping in the Great North Woods of Wisconsin or in the Ontario Highlands, where the finny denizens of the beautiful lakes and streams afford the true sportsman opportunity for securing an abundance of material for the "fish stories" he will take back with him to "the States" and also a welcome addition to the camp fare. To escape the rigors of the northern winters, there is also the opportunity of spending a few months at his Florida home, where he turns fruit grower on a small scale, and enjoys the pleasures and privileges of the fortunate dwellers in that delightful region.

Prof. Beal has been Chairman of the A. Ph. A. Commission on Proprietary Medicines since its organization, and has been tireless in his efforts toward the accomplishment of the work with which the Commission is charged. During his membership, covering a quarter of a century, he has always had the interests of pharmacy in view and has spared neither time nor energy for the accomplishment of those undertakings which seemed to him to be for the uplift and general betterment of the profession as a whole. In this work his thorough legal training has been of great value, while his force of character and magnetic personality command thoughtful attention to the sound arguments presented, which frequently clear away differences of opinion resulting from a mistaken view-point. One of the legislative achievements which earned for him the lasting gratitude of the people of his native state was the enactment of the Beal Local Option Law, secured by him while a member of the 75th General Assembly of Ohio, a measure which was upheld by the United States Supreme Court, and which has since served as a model for the drafting of local option laws in other states. He also drafted the "Model Pharmacy Act" approved by the A. Ph. A. at the Richmond, Virginia, meeting in 1900, a model poison law, and a model state anti-narcotic law (1903), all of which have been frequently copied from in state and national legislation. And he is frequently called upon by legislative committees for assistance in the preparation of bills of interest to pharmacists.

Prof. Beal possesses in an unusual degree the qualifications of the true teacher, and hundreds of chemists and pharmacists in the United States are proud to acknowledge that much of their professional success is due to the careful training received while under his instruction.

As drug clerk, professor of pharmacy and chemistry, author of several textbooks and many papers on pharmaceutical and general topics, Prof. Beal has been prominent in various lines of professional activity, and enjoys in large measure the respect and esteem alike of those interested with him in the struggle for the betterment of conditions affecting all branches of the drug trade and of those with whom he is associated in the world at large.

M. L. C.

EDITORIAL

E. G. EBERLE, Editor

253 Bourse Bldg., PHILADELPHIA

WILL PHARMACY FIND HERSELF?

IN one of Kipling's tales, "The Ship that Found Herself," the story of a newly launched ship, severely storm-tried on her first voyage, is narrated in an instructive way. Under the stress of headwinds and heavy seas, the various parts of the ship's structure—the beams, the plates, the shafting, and so on—feel the strain and pull, and voice their separate grievances, blaming everyone but themselves for the excessive burdens put upon them. The steam alone, having been through similar trials before, counsels patience and coöperation. At last the discordant elements are harmonized and integrated and the voice of the good ship "Dimbula" is heard for the first time.

This allegory holds a lesson for our profession, at this critical period in our history. Will pharmacists rise above petty and personal considerations and weld themselves firmly together into a harmonious whole? How else shall the good ship be saved? It is an old axiom that the whole is *equal* to the sum of its parts: it is the newer experience that these parts coördinated and combined are far *greater* than their sum. President Wulling's address presented a powerful plea for the union of all pharmaceutical forces and organizations. How shall the beginning be made? Does not the National Drug Trade Conference offer a nucleus? Here are represented the national associations which can speak with authority for all the branches of pharmacy. Already the Conference has made itself felt in pharmaceutical affairs. It has exercised no small influence in shaping legislation which concerns all pharmacists. The American Pharmaceutical Association has formally expressed its willingness to give the Conference added powers. Why not begin the integration here and now?

W. B. D.

MEDICINE, PHARMACY AND CHEMISTRY.

IT has been my good fortune to be unexpectedly called to fill the high office of President of the American Pharmaceutical Association as the result of the sudden and sad death of its duly elected president, my highly esteemed and respected friend, Charles Holzhauer, of Newark, N. J. Whatever plans or appointments he had made shall be my plans and appointments as well.

As his death came so early in his term of office he scarcely had time to formulate, much less carry out, any plan of action. According to my point of view it is unfortunate that the president of this association as a rule only makes his recommendations and suggestions at the meeting at which he presides and which is at the close of his term of office, thus depriving him of the opportunity of putting such suggestions into practice. For this reason I have concluded to lay before the pharmacists of this country in general and of this association in particular some ideas and suggestions which appear to me pertinent and advisable to-day. I will refrain from making any criticisms of pharmacy and of our association, but confine my remarks to constructive suggestions which I trust may induce pharmacy and all

other pharmaceutical associations as well as this association, to seriously consider the *status quo* of their profession and its associations with an end in view of meeting the needs thereof by such action as they may deem wise. I am presenting my subject in the form of a triple parallel between Medicine, Pharmacy and Chemistry, all of which are cognate sciences and closely identified and connected with one another from their inception. My presentation is to be a historical one and its survey shall cover briefly the period from Galen, who was born in 132 A. D., to to-day. This brief outline of history will point our clearer and more effectively than can words of mine why pharmacy has not kept pace with her sister sciences and why this association has not developed and grown like the great national associations of medicine and chemistry. There is a reason, and as in case of this cataclysm of war now devastating the civilized world, history reveals that reason.

Pharmacy and pharmacies originated amongst the Arab tribes at the dawn of the Christian Era. The name to be sure is of Greek origin and is derived from the Greek word *Pharmakon*, meaning a drug. The word Chemistry is, on the other hand, derived from the Arabic words "*al*" meaning "the" and "*kheme*," meaning "black earth," together, alchemy, or the black art; and later developed into "Chemistry" by omitting the particle *al* and lengthening the word. Another derivation is claimed, however, from the Greek words *chymia*, meaning alchemy, and *iatreia*, meaning medical treatment. This derivation is based upon the fact that out of a combination of the alchemists and their study of medicines given in medical treatment, resulted the science of chemistry. Medicine is derived from the Latin word, *medicina*, the art of healing, again derived from the word *mederi*, to heal. Thus the oldest of the three sciences, medicine, has a name dating from a later period in history than either of its derived sciences. Medicine dates back to Hippocrates who lived in Athens at the time of Pericles, about 430 B. C., and was supposed to be eighteenth in direct descent from Aesculapius.

Medicine developed very gradually until the time of Galen, who developed the use of vegetable drugs and herbs in pharmacies where at that time medicine was practiced with the administration of such vegetable potions and herbs as were then used. Those physician pharmacists were also alchemists and practiced during the dark ages and middle ages the so-called dark or occult arts, including necromancy, magic and much quackery and deception. From the time of Junius Firmicius about 300 A. D. we first meet the term Chemistry, from the Greek *chemen* and *chemeia*, meaning the book and the art of ennobling metals, so that chemistry really means originally the art of ennobling metals, and from this time on through the centuries, even up to the nineteenth, kings and princes were induced to employ and subsidize these alchemists to try to convert copper and lead or tin into silver and gold. Prominent among these were Geber the Arabian, Albertus Magnus, Roger Bacon, Raymond Lullus, all of whom believed that there existed somewhere the philosopher's stone, the touch of which would commute base metals into gold. Medicine employed only vegetable and herb remedies during this period, and hence the name galenicals for this class of preparations. One of these, Zorimios of Panopolis in the 4th century, describes a "water of the gods" as *Panacea* (from *Pan* and *aqua*) as a cure-all and from this is derived our word Panacea.

In the latter part of the 15th century the alchemist Basilus Valentinus developed many inorganic preparations of mercury, antimony and arsenic, and used them as medicines besides the herbs of the Galenites. Then in the 16th century we pass to the school of medical alchemists, the most famous of whom was Paracelsus. This school was called the Iatro-chemical school and its theory announced by Paracelsus was that the healthy body, being made up of certain chemical substances in solution, could when diseased be cured only by the same chemical substances. Hence he preached that Galen's theory of herbs and vegetable drugs curing the diseased body was erroneous. He hence dosed heavily with mercury salts, blue vitriol, sugar of lead, antimony salts, sulphuric acid, iron salts. While he and especially many of his pupils killed many people and were driven out of town after town, his theory gave the next great impetus to pharmacy and incidentally as well founded chemistry, for the great problem now became to invent and discover new chemical compounds for the relief of disease and this was done in the shops of the alchemist pharmacist. His successors, Sylvius, Tachenius, Van Helmont, Agricola, Glauber, Libavius and Pallissy, in consequence developed a great number of such metallic compounds as well as

some organic compounds. Here we hence see that in the early history of all three sciences, medicine, pharmacy and chemistry, all three were practically united in one and frequently practiced by one person, who however almost invariably received his training in a medical school and bore the title "Doctor." The alchemists's shop became the pharmacy and the owner of it practiced the healing art as well as the preparation and compounding of his medicines. From these shops developed through the zest for discovering new medicines, the chemist and the science of chemistry.

Later came the separation of all three during the eighteenth and nineteenth centuries and gradually the chemist became the scientific student looking for scientific laws governing the composition of matter and the changes it undergoes; the medical man became the curer of disease and the student of the human body in health and in disease, while the pharmacist became the student of the plants of the field and forest, the chemicals of the chemist and their proper preparation in forms suitable for administration as medicines. Each had his field and each field was important and required great patience, ingenuity and careful study and observation. Each science developed gradually and steadily along different lines, medicine and pharmacy confining their activities to curing disease, while chemistry not only did its share to produce new medical substances but spread out gradually over all the other branches of industry that have to do with matter of any and every kind, until to-day any industry that does not employ the latest discoveries and methods of chemistry in its processes, from the laundry up to the steel plant, can not successfully compete with its competitor that does. The chemists have for a century flocked to the universities all over the world to complete their needed knowledge and practice culminating in the securing of the degrees of "doctor of science" or "doctor of philosophy," which stamp them as broadly educated men with well-trained minds. The medical men and the pharmacists during the eighteenth and especially the nineteenth centuries sought their education in so-called colleges of medicine and pharmacy in this country. These colleges were at first most crude and were practically workshops for training the hand as well as the head in a practical knowledge of their professions. They were very much mixed in quality and in the products they turned out; some were fairly good, some were indifferently good, many were markedly inferior, and but few were high class. Many were run for the financial returns they gave to those who founded them, owned them and taught in them. The doors were wide open and anyone could make a try at learning medicine or pharmacy if he paid the fees and passed the examinations, even if he did not, as frequently occurred, attend all or even most of the lectures.

The medical college granted the degree of doctor of medicine, not so much because the course of mental training justified that exalted title, but because those practicing the science of medicine were known to the laity as doctors. The pharmaceutical college never essayed at that time the degree of doctor of pharmacy, and to its credit be this said, because the course of training and study certainly did not merit the title. Its degree was and to a large extent still is Ph.G., or graduate in pharmacy, indicating that the holder of the degree has studied, practiced and graduated in pharmacy. In those days medicine and pharmacy ran along together in standing and quality of men turned out. A change came over the scene, however, during the last decade of the nineteenth century, for then medicine became organized. All its manifold branches, instead of getting further and further apart and developing a school for surgeons, one for ophthalmologists, one for obstetricians, and gynecologists, one for dermatologists, pathologists, etc., etc., as seemed to threaten, due to the ever-increasing specialization needed to really properly become a successful medical man that could demand confidence and meet with success, came together under the aegis of the American Medical Association and formed so as to speak a medical combination or trust. To medicine's lasting credit and benefit be it said that this was a wise and far-seeing move and inured immensely to the benefit of the profession of medicine and of the general public who are their patients. Pharmacy, however, did not organize by gathering together the several branches of its profession under one roof and management, but, instead, her disintegration into more and more branches and associations continued and

even increased. There are in fact to-day no less than ten pharmaceutical associations of a national character, to wit: the American Pharmaceutical Association, the National Association of Retail Druggists, the National Wholesale Druggists' Association, the Proprietary Association of America, the American Drug Manufacturers' Association, the Association of Pharmaceutical Chemists, the National Association of Boards of Pharmacy, the National Drug Trade Conference, the National Pharmaceutical Service Association, the National Retail Drug Clerks' Association. Each of these has to do with pharmacy in some shape or another, but each is as independent of the other in policy, management, membership and location as if they belonged to different professions or industries. Medicine developed a master organizing mind, George H. Simmons, while pharmacy developed no such master mind for organization. The organization took place first and practically all allopathic medicine has rested and to-day rests in the American Medical Association. One of the first results and the wisest move made by medicine was to gradually but steadily raise the educational requirement for admission to medical colleges, and then to lengthen and strengthen the medical courses. This began in the last decade of the nineteenth century. It has reached such a stage now that three results are plainly apparent:—first, the reduction in the number of medical colleges and their gradual absorption by universities; second, the requirement of the degree of A.B. or an approximate equivalent for admission to the medical courses, resulting in the degree of doctor of medicine approximating in quality that of the doctorates of philosophy, law, science and theology; and, third, the vastly increased influence of medicine and medical men in the councils of state and nation as well as in the service of the Government. Without the thorough organization and centralization of all branches of medicine and medical associations little if any of this wonderfully powerful American Medical Association could ever have developed. It almost succeeded in creating a separate Department of Health as one of the departments of our Government, and it may yet succeed in accomplishing this result. There is danger, of course, of this American Medical Association with its 65,000 members out of 150,000 physicians in this country overreaching itself and exceeding its legitimate sphere because of its wonderfully successful growth and development of strength and power. Many signs point to this possibility but it is to be hoped for the best interests of medicine, of the public, and of pharmacy that right reason and sound judgment will prevail and prevent the present great and useful organization riding for a fall.

Chemistry, too, has been effectively and successfully organized and consolidated in the great American Chemical Society, which to-day has far more members than any chemical society here or abroad, in fact, has more than all of them together in England, France and Germany. It at first was threatened with disintegration and separation into several independent units, as is pharmacy to-day; but thanks to the liberal education and consequent broad view of its members and to the presence thereamong of wise counsellors and able organizers, it weathered the storm and is to-day a power and citadel of strength that is supplying the needs of our country, cut off as it has been from so many of its needed essential chemicals and medicines. In the crucible of this great war, chemistry has been weighed in the balance and not found wanting. This means much, much more in future growth, progress and industrial independence than most people realize or than pen can portray or financier estimate in dollars and cents. Beginning in 1895 with 950 members, it gradually

attained in 1900, 1200 members; in 1910, 4500 members, and in 1917, 10,135 members. Chemistry has been the great energizing agent of our industries. When we say only the "squeak" is lost we pay a tribute to chemistry, and every year more and more industries "lose only the squeak" thanks to their appreciating that scientifically worked out processes and utilization of waste make world competition and unexcelled products possible. This is due in large measure to the organization of the chemical forces in the coöperating and coördinating American Chemical Society, which by its two great Journals, the *Journal of the American Chemical Society* and the *Journal of Industrial & Engineering Chemistry* is offering to its members the very best there is in chemical science to-day, without which they could not well keep abreast of the times. Just so is the *Journal of the American Medical Association* offering the medical men of this country a full and more than a full equivalent for their membership fee without consideration of the great benefits its organized strength offers them in protective legislation.

Pharmacy has, as we have seen, not profited by the experience of her former sister sciences. She has not seen the light and she has not developed the organizer and Moses who is to lead her out of the desert. Instead all her ten sub-divisions as separate national associations still each carry their own overhead charges and divide the influence and weight of pharmacy in national and state councils into ten parts. The inevitable result must follow, *viz.*, an unequal fight of organization against disorganization, and while chemistry and medicine will grow and prosper steadily, pharmacy will, unless she takes the lesson to heart, stand still, which means retrograde. The American Pharmaceutical Association has 2700 members out of 50,000 pharmacists in this country, or five percent against about fifty percent for both national associations of chemistry and medicine. If her ten associations were all consolidated into one association as has been ably pointed out by President Wullig at the Indianapolis meeting of the A. Ph. A. last summer, but with each retaining its own organization as a separate section of the same, the beginning of real advance would be made. Thus consolidated and if possible all meeting at one time and place, but in various rooms and with a permanent building as a home, a permanent management by a set of competent men, who would be well paid and on their job all the year, pharmacy would soon put out new shoots and rapidly become as beautiful a tree in the garden as are to-day those of medicine and chemistry. To be sure an effort in this direction was made when the National Drug Trade Conference was established in 1912, but unfortunately that Conference is without any power to do things and in consequence has not been able to accomplish much for pharmacy, although it did bring about the enactment of the Harrison Anti-Narcotic Law by the action of its constituent organizations—a truly great piece of constructive legislation. It is possible to effect the desired consolidation of pharmacy through the agency of the National Drug Trade Conference by getting that body to agree upon the general principle of such consolidation, and then through its delegates get the several national associations it includes to approve the movement and action. To do this the N. D. T. C. should appoint a special committee of six men to attend in a body each national association meeting, and, having announced its coming and plans beforehand, present same for adoption at the meetings. Should that not prove possible, then the simplest way would be to call a special meeting of the several national associations to be attended by those of the leading

members of each and at this meeting endeavor to bring about in 1918 what medicine and chemistry have done decades ago.

At this meeting the things to be accomplished and the ways and means of accomplishing them should be discussed at length and the work thus begun continue until pharmacy will be returned to a fitting place alongside her sister sciences and a place which she so richly deserves because of the important and necessary part she plays in the every-day life of this busy-day world. Among the topics to be discussed and included in the plan then to be proposed would be pharmaceutical education and preliminary requirements, united legislative work, central testing and standard laboratory, one strong, able and valued journal, drug clerk and employers' registration bureau, patent and trademark registration bureau, legal department, accounting, shipping, advertising and cost price bureau, exchange bureau for goods of retailer and jobber, pharmacopoeial and national formulary laboratory and bureau, establishment of local branches and consolidation of same and state associations with the national body.

If, during my incumbency of this high office of president of the oldest national and most representative pharmaceutical association, the cornerstone of a movement looking to the placing of pharmacy in her proper niche in the temple of sciences shall be firmly laid, I should feel proud indeed and I would be willing to devote my share of the time necessary to subsequently complete the structure.

My appeal hence to pharmacy and pharmacists and the entire drug industry is to consolidate their interests, not their business, and organize same in such a manner that the future of pharmacy in all its branches may become as representative and its degree as respected and high in grade as are to-day those of its sister branches of medicine and chemistry.

To this end I propose to try to present to each of these national associations and their members a plea for the consolidation of pharmaceutical interests into an organized and enlarged American Pharmaceutical Association together with a concrete plan for such consolidated or federated association, and to personally attend all their annual meetings and deliver my message, imbued and enthused with the hope that my efforts may result in some positive action being taken by each national association to coöperate in the movement and plan. No industry, institution or organization ever becomes great and influential among its own devotees or the public at large, that has no vision and realization of becoming something larger, stronger or better than it was or is. Self-complacency is synonymous with stagnation and retrogression. After the war the world's attitude to coöperation and consolidation will change; for these will be understood, in the light of our fight for democracy and greater freedom, to mean greater efficiency and greater possibilities. In all probability the Sherman Law will be materially modified or perhaps repealed. It is contrary to the spirit of to-day and to-morrow and in place of splitting the corporation into wee bits and preventing its working to its best advantage in the world contest for trade following this war, the Congress should and probably will permit and legalize consolidation and coöperation tempered, however, with regulation. This is hence the psychological moment for all drug associations to consolidate and coöperate. Will they see the necessity and catch the spirit of to-day?

A. R. L. DOHME.

SCIENTIFIC SECTION

SCIENTIFIC DRUG FARMING.*

BY H. C. FULLER.

I want to precede this reel¹ that I have brought, with just a few observations on the general subject of drug propagation. There has been some misapprehension in the minds of the great majority of the people regarding the question of drug supply, and especially drug growing. Most of us here are familiar with the literature that has been going the rounds of the scientific and especially the daily press on this matter, and with the alluring stories and propositions that have been placed before the general public relative to indiscriminate growing of drugs.

As I have sized up the situation after a good many years of study, there is a demand for the drug growing industry in this country. I believe, however, that the only important factors are those manufacturers who grow drugs for their own consumption, and enterprises for growing drugs whose sole object is the propagation, curing and marketing of these products. I do not think it will ever be possible, and I do not think it should be advocated to have the small grower, the small farmer with two or three acres, undertake the general propagation of drugs. It might possibly be profitable for a man of ability and with considerable land to grow certain drugs for some proprietary manufacturer or firm that would make a contract for his whole output.

In the first place the market conditions with reference to drugs are entirely different from those relating to other crops. The units consuming drugs are limited in number. They are practically confined to the manufacturing pharmacist, the manufacturing chemist and the crude drug dealer. The retail druggist does not require large amounts of crude drugs, and those he buys he can purchase to better advantage from the wholesaler, who in turn, of course, obtains them from the crude drug dealer. The question of sales is important. In fact, that is one of the most important points of this industry, and the novice can not cope with the skill and keenness of the drug buyer and drug broker.

The question of getting proper seed to start a crop is almost hopeless until the grower has studied the situation and developed his own stock. Then there is the question of proper soil and cultivation. Each drug requires different conditions and the grower should be a botanist; and he must know something about drugs and how the plants grow on their native heath before he can attempt to grow them commercially with any degree of success.

There is the question of plant diseases. Anyone who has ever tried to grow drugs has learned this lesson and also of the different insect pests that are likely to make luscious meals of drug crops. The growing of plant drugs requires the coöperation of a plant pathologist and a good entomologist.

Many of the most important, or staple, drugs that can be grown in the United States have to be started in greenhouses. This in itself requires quite

* Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

¹ Motion pictures of the drug growing industry were shown.

an outlay of capital. Then, in order to produce enough material to make it worth while, special machinery is necessary both for planting and harvesting. And as drugs are not marketable unless they are of the proper appearance, and of the proper potency, the question of curing is extremely important, and that can only be done successfully in drying houses of proper construction, with proper regulation of heat, and other constant, careful attention until the crop is thoroughly cured.

Then, finally, and one of the most important features of the whole situation, is the control laboratory, because it would be ill-advised from every standpoint to go on the market with a batch of drugs of unknown potency.

There has been much progress made during the last few years in this work. Large pharmaceutical houses in the country have established their own drug growing farms, and they have been successful. The Department of Agriculture established the camphor industry in the south, and it has become an important industry. Hydrastis, which is important in our own materia medica, has been cultivated for a great many years by growers, operating small acreages in parts of the west and northwest. In Washington they have been doing something along that line, and the films which I have brought with me illustrate some of the points that I have tried to bring out in these prefatory remarks. The pictures will take you from the spring when we begin until the present time in our operations; in fact the last picture was taken only a few weeks ago when the thermometer was 124° F. in the sun.

(A series of pictures of the drug growing industry were here shown.)

DRUG PLANT CULTIVATION—DRUG PLANT BREEDING.*

BY F. A. MILLER.¹

I will omit introductory remarks and begin immediately with the slides,² attempting only a brief explanation of the work that we have been doing.

That which we have attempted to do in Drug Plant Cultivation and Drug Plant Breeding has been along the lines of improvement and economic production. I mean by economic production, an attempt to determine the possibilities of growing the more essential medicinal plants upon a basis, that would enable us to grow them as we grow other economic plants. If we set out to grow medicinal plants, regardless of the cost of production, we can probably grow almost any of them, but if we limit ourselves to those which can be produced economically, there are limitations.

(A plot of digitalis in its first year's growth was shown, followed by others of the series.)

During the year that we were working on digitalis, we grew and tested a large number of varieties, in fact all the varieties which could be obtained from this country, England, Germany and Japan, making a special effort to obtain seed of all named varieties and species. *Digitalis purpurea*, being a domesticated form,

* Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

¹ Biological Department Eli Lilly & Co., Indianapolis.

² As indicated, Mr. Miller spoke while the pictures were being shown on the screen; the subjects related to breeding and cultivation of drug plants.

has been made to produce a large number of varieties, and our aim was to find one that was better in its physiological activities than the official digitalis. It has now been found that digitalis does not need to be grown through the second year to give an active leaf, the first year's growth being fully as active as the flowering plant.

You will notice in this slide a difference in the size of the beds. These are of the nature of test plots, and consist of measured areas. By keeping accurate expense accounts of these test plots, we obtain figures which indicate the possibilities of growing the different species on a larger scale.

The next slide is a view of a selection and breeding plot of all varieties tested. Thirty-two of them were grown and tested physiologically, the results of which were published some two years ago.³ Some of the breeding work that has been done is shown in progress on this slide, the flowers being protected, of course, by ordinary paper bags to prevent cross-pollination.

We have also carried on experimental work in the greenhouse during the winter months, and this is digitalis growing in midwinter. You will notice that some plants are blooming. Digitalis is biennial but it can be brought into bloom by continuous growth without giving it the resting period which it has in its natural state.

Turning now to Cannabis, we have here a very luxuriant growth. This is a strain which we have developed by selection. Animal tests on this drug indicate about 90 to 95% activity when compared with good Indian Cannabis. This slide shows the harvesting of the same field of Cannabis, where you will note the rows to be about three feet apart, the plants being much taller than the average sized man. Some of these plants reach a height of from twelve to fourteen feet. The problems of harvesting are suggested here, where the cutting is being performed by hand. We have attempted to cure Cannabis partially in the field, cutting and binding into bundles and shocking. It is then taken under cover and the curing completed. Later the inflorescence is removed from the stems and separated from the leaves and seed. No effort has been made to eliminate the male plants. That only aids in the reduction of the percentage of seed in the finished product, and we find that we can do that more economically by allowing the plant to produce seed and then remove these at the time of curing.

We have touched lightly upon the question of fertilizers. They are necessary on some types of soil for successful drug cultivation. This slide represents a pot experiment carried out in the greenhouse with various types of fertilizer. We have in the first row, manure and potash; in the second, manure, potash and phosphorus; and in the third, phosphorus and potash. This was an attempt to determine the best fertilizers for Cannabis, and if I remember correctly, the complete fertilizer, potassium, phosphorus and nitrogen gave us the best growth.

Cannabis breeding has occupied some of our time, and we have isolated here a dwarf variety. This individual plant shows short branches and very heavy inflorescence. The inflorescence is heavier, especially on the central stem, than that found on the tall-growing variety.

Unfortunately we do not always find the combinations of characters in plant breeding, that are most desired. In this variety we have obtained a plant of much

³ See JOURNAL A. PH. A., March 1914, pp. 304-314.

better form, but which shows little activity. The variety has been tested for several years, but has never been over 40 percent as active as the Indian drug.

Some work has also been done on Stramonium. A large number of species have been under experimentation. This is a plot of mature stramonium, showing an attempt to simplify the process of harvesting. This drug has been cut with an ordinary mowing machine, the whole plant being taken in, cured, and the leaves removed after the curing process is completed. This shows the operation of cutting. The poor yield is due to the type of soil. It is not adapted to growing this plant. The ordinary farmer will tell you that Jimson will grow anywhere, but we are convinced that it is quite selective in its habitat.

Turning to Belladonna, we have here a section of our propagating division in the greenhouse. These are seed flats in which are thousands of seedlings just ready for the first transplanting. This was an experiment upon germination. The right half was planted with seed which had been treated with boiling water.

Here is a section of cold frames where seedlings are handled. These plants are being removed from the greenhouse preparatory to their setting in the cold frame, or transplanting to the open field, as the case may be. Many of our plants are transferred from the greenhouse to cold frames, beginning the first of March. They can be safely transferred at that time and will withstand the usual hardening off process. Transplanting, of course, comes next and we use the machine shown on the screen. Only one man is used on the machine, since it has been found that one experienced man will accomplish as much and do it better than two.

This is a general view of one of our early breeding plots of belladonna. To the right you will notice plants with white spots on them. They are paper bags, protecting the flowers from cross-pollination. We are very much delighted with one strain recently isolated. Three years' testing has shown it to possess a very much higher percentage of alkaloid than the average type. Unfortunately, as I stated before, we do not always get the best combination of characters. It grows less vigorously and is more sensitive to soil and weather conditions.

This is a view of the harvesting of a belladonna crop. Cutting is done by hand and the entire plant is immediately removed to the drying shed. After partial curing, the leaves and stems are separated. We have grown belladonna strictly as an annual, starting about January and completing the harvest at the end of the season, taking out all the roots.

Henbane is probably more important this year than belladonna, but more difficult to grow. This is one of our early plantings. This planting was made in 1915 and represents an early stage of growth. Here is a later stage, showing the plants somewhat larger, and still another one where the plants have reached a very luxurious stage of growth. A midsummer shower on this plot, followed by a hot sun, converted the entire plot into one resembling a field treated with hot water, practically every plant in the plot being lost.

This is *Hyoscyamus muticus*. This group of plants, consisting of about two hundred, were transferred to the open ground during the month of May, and were all lost, probably on account of the cold, wet weather which followed. This, of course, is the tropical hyoscyamus from which atropine is obtained. It has proved very difficult to grow even under carefully controlled greenhouse conditions. Some few plants have been grown to the flowering stage, but none have so far produced seed. Attempts to cross it with *Hyoscyamus niger* have been unsuccessful.

THE CULTIVATION OF HENBANE.*

BY N. R. MUELLER.

During the past three years much attention has been given to the commercial growing of Solanaceous plants containing mydriatic alkaloids. Of course belladonna and stramonium have been produced in increasing quantities, but it is apparent that the cultivation of henbane offers several problems which differ materially from those encountered in the handling of either of the first mentioned crops.

Stramonium is successfully grown from seed sown direct to the field in spring, while belladonna has thus far been produced from transplanted seedlings. When an attempt is made to transplant henbane seedlings grown in a green-house or frame, the results are discouraging, since the plants seldom recover from the shock of transplanting, and when an occasional plant does survive, it remains stunted and puts on but little growth during the summer. It has been found that injury to the long tap root of the seedling is the cause of this loss which often exceeds 50 percent of the plants set out, hence this method of propagation is not practical on a large scale.

Since transplanting is not feasible, some experiments have been made at the Wisconsin Pharmaceutical Garden¹ to determine the practicability of sowing seed direct to the field. Biennial henbane seed sown in early December 1916, at Madison, Wis., began to come up about May 10, 1917, while some of the same seed sown April 21, 1917, came up May 16, 1917. It is to be noted that the spring sown seed came up only a week later than that sown in fall, and also that it presented a more uniform stand.

In selecting a field for henbane, it is advisable to get a level area comparatively free from weeds, because the slow germination of the seeds, and the low growing habit of the plants, at least until they attain a growth of several inches, makes hand weeding necessary, and this labor as well as that of cultivation is greatly increased in a weedy field. So far as soil is concerned a well drained fertile and friable sandy loam or silt loam gives the best results.

One pound of good henbane seed is sufficient for planting an acre in rows two feet apart. Henbane seed retains its viability several years provided it has been kept dry. Commercial seed which shows a fair percentage germination can be used; however, better results will be obtained from seed which has been collected for planting purposes. If possible, the germination of all drug-plant seeds should be tested before planting, since many ventures have met with failure mainly because poor seed was used. If sown by hand, the seed can be mixed with sand, and dropped into a shallow drill; however, more uniform planting will result if a small seeder is used. The seed should be checked so that one viable seed occurs in every four inches of the row, and due care must be taken to cover the seeds not deeper than about one-fourth of an inch. If necessary, cultivation between the rows to keep down the weeds can be carried on before the henbane plants appear, provided the rows are discernable or have been marked at the ends. Later the plants should be weeded and thinned to stand about four inches apart.

* Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

¹ The Pharmaceutical Experiment Station, Department of Pharmacy, University of Wisconsin and Office of the Drug-Plant and Poisonous-Plant Investigations, Bureau of Plant Industry, U. S. Department of Agriculture, coöperating.

Insects, particularly the Colorado beetle or potato bug, have been perhaps the greatest factor in discouraging the growing of henbane. The potato bug apparently prefers henbane to any other plant in the same family. Spraying with Paris green and with lead arsenate have shown that the latter poison is most efficient. A dilute spray (1:1000) should be applied to the rows when the plants are about one to two inches tall. During the latter part of July when the ravages of the beetle are most severe, another light spray of lead arsenate is usually necessary. Two applications of the insecticide have been found sufficient to curtail the damage from this source. It is advisable to spray the plants several weeks before harvest, and it is necessary that at least one rain should wash the leaves before they are collected.

In order to ascertain whether any appreciable amount of lead arsenate was present on the leaves of sprayed plants, arsenic was tested for according to the method given in the U. S. P. IX. About 200 grammes of green leaves which had been sprayed ten days earlier, and had received one drenching rain, were collected. The surface of each leaf was thoroughly scrubbed with water. After concentrating the 200 Cc. of water used for washing, several tests were made and in each case the trace of arsenic found would amount to less than 0.002 Gm. in each kilo of dried henbane leaves. The arsenic contamination is, therefore, so small as to be negligible.

The crop of leaves should be cut in fall before frost, taken to the drying house and spread thinly either on the floor or in trays, depending upon the available drying facilities. A small amount of heat and a current of air hastens the drying process, and also preserves the green color of the leaves.

Comparative yields indicate that almost twice as much drug can be obtained from the first year's growth than from a similar area of second year plants.

Chemical assays of the leaves of the second year's growth biennial henbane showed a total of 0.07 percent of alkaloids, while leaves of the first year's growth grown from the same seed gave 0.067 percent of the alkaloids of hyoscyamus. It is evident from these assays that the activity of the drug is about the same whether collected the first or second year.

SYMPOSIUM ON DRUG CULTURE.

W. W. STOCKBERGER.

I availed myself of my opportunity as secretary to use that old principle that it is easier to get somebody else to do your work than to do it yourself, so instead of preparing and presenting a paper I suggested this symposium, and I trust that I shall not fail to be rewarded by having a number of those present deliver my paper for me.

The main thesis which I wish to bring to the attention of the Section has already been enunciated by our old friend Dr. J. U. Lloyd.¹ In his comments following the exhibition of the reel of pictures on drug cultivation you will remember that he, out of his years of wisdom and experience, recognized the importance of fully appreciating the resistance to be overcome in every enterprise. I am fully convinced that the commercial cultivation of drug plants at least is not a romantic adventure, but that it is a practical business proposition. It so happens, by virtue of the position which I occupy, that I learn much of what is going on in this country with respect to drug cultivation. What I wish to emphasize is this—That even among the men who are the leaders, or who ought to be the leaders in this subject, there is the most extreme

¹ These remarks have been omitted because they are in substance repeated by this speaker.

divergence of opinion as to what is and what ought to be done. We all recognize that we can not agree fully and completely, but I do not believe that there is any reason for the great difference of opinion with respect to this matter of drug cultivation, that exists even among the members of this Section; and what I wish to suggest for your consideration has already been foreshadowed by Dr. Lloyd when he said that he wished we might have a circular which would put this matter in concrete, crystallized form, so that uniform information could be sent out by all of us. Now that is the point that I wish we could reach to-day. We ought to agree on a definite general policy. Of course we may not all agree on details because each man wishes to have his own opinion; but the general policy toward drug cultivation I think should be agreed upon.

Now to illustrate: Either there is an opportunity for thousands of people in this country to make enormous profits with little or no work or else that opportunity does not exist. Now which way is it? That is one of the points upon which there is difference of opinion. The opinion has been expressed that we should encourage every individual who expresses an interest in the cultivation of drug plants to go into the business. Even though ninety-nine out of a hundred fail—so this opinion goes—the end justifies the means if one makes a success. Now that is a principle to which personally I am diametrically opposed, because I see no justification for lending our encouragement to ninety-nine failures, with the meagre hope of one success. Moreover, if there is any legitimate place for the future development of drug cultivation, and if we are to approach those ideals which have been so splendidly presented here this morning, according to which the products of drug cultivation will be gathered and handled under controlled conditions and properly tested with respect to their standard of excellence then we cannot afford to jeopardize the development of that side of this proposition by encouraging a large number of people to go into the business if they are going to fail, because that will bring the whole proposition into disrepute. And so it seems to me that this is another point upon which there should be no difference of opinion.

Another point upon which there is disagreement is the opportunity which exists for commercial drug growing. The thought came to me one day when riding on a train to be a little spectacular for once by presenting graphically the contrast between the opportunity for the American people in this enterprise of drug growing and their opportunities with staple crops. For the drug crops I chose belladonna and assumed that the entire requirement of this country could be grown on say, three hundred acres. I chose corn as the staple crop for comparison although I realized that when illustrated graphically, the line representing the acreage of corn would be very much longer than that for the acreage of belladonna. When I came to calculate the length of my two lines I found that if I used one thirty-second of an inch to represent the acreage of belladonna, the line representing the acreage of corn would run down the street for almost half a mile. Now this question of relativity is another one of the important things, it seems to me that we ought to appreciate more fully. The man who publishes a magazine article on drug growing and says to thousands of readers, "Here is an opportunity," may tell the truth, but he misses the important point. What may be an opportunity for a few individuals may be of no significance whatever when addressing the American people, among whom we number our farmers by the millions. Likewise the suggestion that \$4000.00 or \$5000.00 can be made from a few plants of belladonna or golden seal or ipecac in a back yard, or some such proposition as that, is misleading to say the least, but strange to say there are thousands of people who believe this fiction and straightway set out to secure material to plant, in the hope that they will obtain these great returns for their efforts.

Just a few weeks ago I sent out a circular letter to every person that I could learn of in this country who was growing belladonna, or who was supposed to be growing belladonna commercially. I am not at liberty to give a detailed abstract of the replies received, although I wish I could, for your edification. Suffice to say that out of a long list to whom I sent this inquiry not more than one percent reported that they had any degree of success at all. A very large number reported total failures, and as they had purchased belladonna seed with which to experiment at five dollars an ounce, they were naturally disappointed. Some of us receive hundreds of letters from people who are anxious to increase their income. They have read glowing stories about the wonderful returns from growing medicinal plants, and have invested five or more dollars in belladonna seed, although they possibly never grew any plants in their lives. Their faith would move mountains but it won't grow belladonna.

Another point upon which I think we should agree more closely concerns the marketing of the products of drug cultivation. Much of our talk regarding the commercial cultivation of drugs fails entirely to take into account the question of marketing. It is all well enough to say to the farmer, "grow corn, or cotton, or wheat," because if he gets a crop there is always a market right at hand. But when he grows belladonna how is he going to sell it? He has been told that the druggist or the manufacturing pharmacist will buy it. But his market will be in a distant city, and he will have to advance the freight and then accept whatever price the consignee may choose to pay. Few of these people know how to prepare their drugs to meet the usual market requirements, and to the problem of disposal ninety-five percent of those who are thinking about this enterprise may never have given any thought at all. They assume because staple crops have a ready market that it will also be easy to market their drug products. I do not wish to discredit the worthy motives which actuate many persons who are urging drug growing. All that I ask is that we see both sides of the question; tell the people the truth in the matter and point out the difficulties as well as the attractive side of the proposition.

There has been, as some of you know, a movement on foot for nearly a year to form a National Drug Growers' Association. It is recognized that there is need for those interested in drug growing to get together and adopt a uniform policy. Such an association may be the means by which that may be brought about. I think perhaps it is a question for debate whether we wish at this time to attempt anything so ambitious as a National Association of Drug Growers. I believe that we can do much as an association either through the Scientific Section, or better, a committee of this Section, composed of men who are interested in the cultivation of medicinal plants. Such a committee could formulate a definite policy and secure the necessary publicity for the same. It seems to me that this is one of the questions we should think about very seriously today.

As most of you know, I am very much interested in the subject of medicinal drug gardens. I believe in these gardens thoroughly, and am fully convinced that they are a wonderful educational stimulus. I shall not try to name all the recommendations they have, since I talked upon this subject at the Atlantic City meeting last year. Since then a number of other gardens have been established and some of the older ones have been much extended. We need to encourage these gardens for their educational value, but it appears that the real function of the School of Pharmacy drug garden is misunderstood by a large part of the public at large, and is not looked upon as an aid to education, as a means of stimulating research and furnishing materials for use in solving many of the problems of *materia medica*, but, on the contrary, they are believed to be established for the purpose of helping people to make money. The commercialism which seems to act as a colored screen before the eyes of some who look at this phase of drug growing should be swept aside and our educational drug gardens viewed in the white light of reality.

Our drug gardens now form a recognized asset of pharmaceutical education and their beneficial effects are very apparent at a number of our educational institutions, but lack of unity of purpose or lack of agreement as to the scope and function of these gardens will sooner or later bring us all into disrepute with the public.

In this rambling way I hope I may have supplemented somewhat the thesis laid down by our venerable colleague, Dr. Lloyd, when he said we ought to crystallize the facts about drug growing in such a way that we can all tell the same story.

EDWARD KREMERS

I want to second most heartily the suggestions made by Dr. Stockberger. I could weary you with a long list of special illustrations supplementing his excellent remarks, but I shall not do so. I want to emphasize, however, that if we are not boosters we need not necessarily be knockers. Dr. Stockberger certainly is not a pessimist on the subject of the cultivation of medicinal plants. Neither am I. But to hold out hopes which will lead to nothing, but which will injure the entire scheme of the cultivation of medicinal plants in this country, is all wrong.

I need but remind you of the hopes that were held out to the farmers of this country for the production of industrial alcohol. According to the newspaper accounts it was to be possible for any farmer to go to his barnyard and pick up the refuse that the cattle would not touch, and convert that into alcohol with which to illumine his house, and to run his farm machinery—also his Ford. You know that nothing has come of that, and it seems to me we have occasion to

congratulate our country that the person who is looking after the cultivation of medicinal plants at Washington is not guilty of holding out any false hopes to the people.

The subject is so large that it is impossible for me to touch on many phases thereof, but before touching on a single phase let me call your attention to the degree of specialization which has developed in the American Pharmaceutical Association in the last twenty-five years. The growth of our Section is an indication of that degree of specialization. There was a time when the members of the American Pharmaceutical Association came together and all talked about the same subjects. There is no thought of doing that to-day. Now we are confronted with the feasibility of either establishing a new section on the cultivation of medicinal plants, or organizing a committee within this Section that is to look after the cultivation of medicinal plants. The problems that confront us in the cultivation of medicinal plants are so numerous and so special that even the scientists of the American Pharmaceutical Association alone may not hope to cope with them.

I want to emphasize the statement made by Mr. Fuller, namely the need of cooperation. At the large universities the men who are interested in the same lines of work, say chemistry, naturally try to get together for purposes of conference. That is very important. And yet when I think of those who are most helpful to us in the cultivation of medicinal plants and indeed in all of our problems in the pharmaceutical experiment station, I do not necessarily think of the members of our local chemical association who are working in the same building or other buildings on the campus; I do not even necessarily think of some of the members in the school of medicine but the colleagues of whom I think first of all are the professor of experimental plant breeding, of the professor of entomology, of the professors in the horticultural department and those in the plant pathology department. All of these men are cooperating with us and giving us most helpful assistance. Take, for instance, the subject of plant breeding. We have been requested by the Office of Drug-Plant and Poisonous-Plant Investigation in Washington to make a special study of stramonium. We began by studying the literature on the subject, and several years ago we issued a bulletin in which we called attention to all of the previous work as well as our own. We issued that bulletin for the reason that we wanted to put the tombstone, as it were, on all that had been done before, and we started out anew. It was the professor of experimental breeding who with his assistants came to the rescue. They are cooperating with us to-day.

Something has been said about the quality of drugs. Take for instance stramonium. The U. S. P. requirements, I think, came down from 0.35 to 0.25 in the alkaloidal requirements—not the present revision, but the previous revision—because the drug of 0.35 alkaloidal strength could not be obtained. It was a matter of chance that we obtained a plant containing 0.45, or, say, 0.40—whatever figures I select here make no differences; the actual figures on record would not be any more true than any figures I put down here (illustrating on blackboard). We took the seeds of that plant in the hope to get pedigreed material. Suppose we have a thousand seeds from one plant. We sow these seeds, we thin out our plants and we have a hundred plants left. Of these hundred plants we select twenty plants for seed, for purposes of propagation, and we test the leaves of those selected plants. We then find, for instance, that one plant assays 0.41, the next one 0.37, the next one 0.32, the next one less, whatever it is. We find that most of the plants we have assay low, 0.09, or something like that (illustrating). Now first of all the plant from which we have selected seed yielding a drug with 0.40 alkaloid is a composite, with strains of ancestry going back we know not how far. Now what we do is to eliminate some of those strains, and we take, for instance, this plant here with 0.41 percent alkaloid content in its leaf (illustrating). The next year it is again a matter of chance what we get. Out of a thousand seeds we will get possibly a hundred plants. Out of the hundred plants we select possibly twenty for assay.

We may not get a single one as high as 0.5, but again we may take the highest, let it be 0.3 and we propagate. In doing this we eliminate certain ancestries as it were more and more. Whether we can carry the process to a successful conclusion is another question. But I do not want to pose as an expert on the Mendelian law of plant breeding. I simply wish to point out to you how the experimental plant breeder, whether he is trained along plant or animal lines, is helpful to us, and how we, the chemists, have to cooperate with him in connection with our assays in finding out the strains that we want.

Let us next take up the subject of cultivation. I was very glad that you had several illustrations of orchard cultivation illustrated to you. I am not going to dwell on that and how that should be conducted.

Another important matter that might be spoken of is the cultivation of *Monarda*. After a number of failures we seem to have hit upon the right plan. Under some conditions it will not germinate. However, Prof. Beal demonstrated that the same seeds with which we have been experimenting, develop out in the open in Florida without any cover crop, indeed under conditions, as he told me, that in our latitude would have buried the seed forever. Hence it may be that under other conditions more favorable *Monarda* may be raised more readily than with us in Wisconsin. Of the several cover crops that we have tried out, winter rye has been most successful. Now after the rye has been harvested, the plants are three or four inches high, thousands of them, on a small piece of ground.

Incidentally you may be interested to know that in connection with the rye cover crop we inoculated the rye field with ergot, and we obtained a very nice crop of this fungus. However, we did not harvest it, not because we did not want to, but because our inexperience with both rye and ergot caused us to lose the entire crop. I thought the rye was not quite mature and wanted to wait until it was mature. So one morning when I came out to the field, with a high wind blowing, the sclerotia of the ergot were being blown off, and by 4.00 o'clock in the afternoon not a single sclerotium was left. But although the patient died the experiment was a success.

Attention has been called to the cultivation of henbane and the difficulties associated therewith. You have been told that the cultivation out in the open has been successful. The additional point that I wish to make in that connection is this: When you sow henbane out in the open you naturally sow many more seeds than you expect plants to harvest. As a matter of fact we have to thin out the plants. Now instead of going into the field with a hoe and cutting out those plants and letting them wilt, we have tried the thinning out by hand, and we are raising young henbane plants as a by-product as it were. The waste plants are not thrown away. Neither are our excess *digitalis* plants thrown away. Whether they will reveal the same efficiency as the mature plant, I do not yet know. We have here another of those numerous tricks of the trade that you have to learn when you go into the cultivation on an economic scale.

I enjoyed very much indeed the films from the Washington Experiment Station by Mr. Fuller, but I want to caution you against one thing. Certainly if the temperature, as he states, was 120 degrees one day, the workers do not keep up that rate of speed in picking leaves that was indicated on the films. That is a very important economic problem. We have found in picking choice *belladonna* leaves that the picking is half of the expense.

So when it comes to certain medicinal plants and the drugs to be obtained therefrom, we have to get away from many an old pharmacopoeia notion. I remember it was not many decades ago that the U. S. Pharmacopoeia defined oil of peppermint as the oil distilled from peppermint. Then when you looked up what peppermint was in the Pharmacopoeia you found it defined it as such and such a drug. Well, not a pound of peppermint oil was distilled in this country or anywhere else according to that definition. Mr. Allen of London once complained to me that he was trying to distil cinnamon oil from Ceylon cinnamon, as demanded by the British Pharmacopoeia, and that the oil cost him \$20.00 or \$25.00 a pound or more, to say nothing about the profit. Now some of those ideas we have to get away from and the sooner the Pharmacopoeia gets away from some of them the better.

In the case of *digitalis* we have had the difficulty that just before harvesting we might have a heavy rain. Our soil contains a very fine clay which is thrown up against the hairy surface of the *digitalis* leaves, and it is extremely difficult to remove it. You might brush every leaf separately and not remove every particle of clay. You can readily see what such a *digitalis* leaf would cost if you tried to make it true to the Pharmacopoeia. *Digitalis* leaf should not contain more than ten percent of ash, but the choice *digitalis* leaf which we have raised in our garden contained as much as twenty-five percent of ash. That is, the apparent ash content was such. However, only ten percent of this were really ash; the remaining 15 percent were clay. So in supplying an eastern hospital with a No. 20 powder of *digitalis*, we examined the powder as we obtained it by means of a set of analytical sieves. From a kilo we got about one-half kilo of No. 20 powder. We got, I have forgotten how many grammes, of 30, 40, 50 and 60 powder up

to 100. Whereas our No. 20 powder contained 10 percent—that is, represented the drug with its true ash content—the finer powders contained an increasing amount of ash until the finest powder which consisted of 75 percent clay. Now that is a simple mechanical means of improving a drug. Whether, as our friend, the late Martin Wilbert, suggested, the clay might have an occluding effect on the active constituents as well as act merely as a mechanical diluent, has not been determined. That is a problem that we shall have to work on.

Just one other word and I will stop. So far I have spoken simply about the production of the plants themselves and drugs from the plant. When it comes to the production of medicinal or pharmaceutical chemicals from the plants, we have other problems to contend with. Let me take the illustration of the *Monarda* again. *Monarda* usually yields about five-tenths of one percent of volatile oil. A ton of green material therefore will yield about ten pounds of oil. You can therefore imagine how large an area you will require to supply the United States, or simply the Rockefeller foundation with the amount of thymol that it uses in the hook worm campaign. Now that oil assays 50 percent of thymol, according to the assay method. A member of our Association was surprised this morning when I informed him that last year we sent out over 100 pounds of Wisconsin thymol. More than that, he was surprised to learn that none of it had been rejected, but that the purchasers accepted it as A No. 1 thymol. However, we never succeeded in getting the 50 percent of thymol out of that oil. Working with hundreds of pounds we accumulated enough mother liquid from which, by very careful manipulation last winter, using winter temperature, we removed practically all of the thymol. Such effort would not pay commercially, but we wanted to find out what was the cause of our deficiency in manufacture as compared with the assay. We were rewarded by finding considerable carvacrol, an isomer of thymol, which however does not crystallize at room temperature. Here you see we have an illustration of how careful we must go ahead. You may sit down and on the strength of the assay figure out with scientific accuracy, as you think, just how many acres of *Monarda* you need in order to supply a certain amount of thymol, but when it comes to the practical economic problem, the production of the actual thymol, you may find that you get left.

H. C. FULLER.

There is one thing that seems to be emphasized, and that is the unanimity of opinion and apparently the spirit of coöperation that is manifest. And coöperation can do a great deal.

Mr. Miller's statement about cannabis is specially interesting. He can grow cannabis and allow it to come to maturity and go to seed. He can use it in his own drugs and it is all right, and that is perfectly proper, but if we, as a commercial enterprise, attempt to grow cannabis that way, allow it to come to maturity, let it seed, and try to dispose of it, nobody would buy it from us. In fact, we would be liable to have our shipments seized by the United States Government, because they would not comply with the Pharmacopoeia as regards certain characteristics. The drug may test up to the proper physiological strength but it has too many seeds.

Another thing, in culling out our male plants during the season, I have had them saved from time to time; had them examined by assay, the same as I have done with the female plants, and by simply labeling it "cannabis" the pharmacologist reports back that the male tops are better than the U. S. P. and the female tops are equal to the U. S. P. But I can not sell the male tops for cannabis. Nobody will buy them. Now that is just one instance that touches those of us who are interested seriously in drug growing—and I am really optimistic regarding drug growing if it is properly done. I believe coöperation can do a great deal, but there are many other problems that confront us, and ought to be very seriously considered. There is the question of tariff, the question of the attitude of certain bodies antagonistic to botanical drugs which are used in large quantities in certain medicinals, etc. I am going to make a motion that a committee be appointed from this Section, looking to obtaining closer unanimity of opinion and presentation of information regarding this very important problem, to be a permanent committee composed of sufficient members to be representative, but not too many members to be cumbersome, to handle these various problems which have been presented today so ably by the different speakers.¹

¹ See December issue, pp. 1097-98, also p. 860. October number, 1917.

R. A. LYMAN.

I want to assure Mr. Fuller that there is in this room a spirit of coöperation, but I can not say that there is a spirit of unanimity. I am going to take just a few minutes of your time to state the position of the educational garden, which I represent.

I also want to call the attention of Mr. Fuller to this fact: He made the statement that it took a botanist to grow good drug plants. In my institution we have a young Englishman who is neither a botanist nor a scientist, and yet he can make things grow like nobody else has ever been able to make them grow.

I am interested in this matter chiefly for this reason, that drug plant cultivation is full of interesting problems, and it furnishes, as I see it, one of the finest avenues to interest young men of brains to enter the profession of pharmacy, and I do not propose to have anybody take that advantage away from me. I recognize the position of the educational garden. It is primarily for the purpose, to begin with, of helping to teach the students the subject of pharmacognosy. It is a laboratory; it has made a living subject out of pharmacognosy and I do not know why it is not perfectly proper for a great educational institution to attack these problems. For my part I do not propose to permit the Department of Agriculture of Nebraska to concern itself with the great problems of agriculture in our state, and not have the opportunity, that my own college of pharmacy in my own state should have, of rendering service to the druggists of Nebraska.

This is an educational garden; it must become a research garden. Just for example, I do not know why I should not be permitted next year to interest myself and my students in the following economic pharmaceutical problems: I have discovered this year that when henbane and potatoes grow side by side, the potato bug leaves the potato every time for the henbane. We in Nebraska raise millions of bushels of potatoes. The insecticides and the labor required for their application costs the farmers of Nebraska thousands of dollars. I do not know of any reason why I shall not next year, as a problem of my institution, have my students work upon an acre of potatoes with a row of henbane around it, and determine the cost of production of that acre of potatoes compared with another acre of potatoes that is not surrounded by henbane. If the potato bugs will leave those potatoes and go to that henbane, the student can apply insecticides to that row of henbane, at much less expense of material and labor. That is my problem.

Now I appreciate the position of everybody who takes the opposite view, that we should not encourage the cultivation of drugs in the way it has been encouraged. I rather admire Dr. Stockberger for taking the position that he has in discouraging the venture without the proper knowledge, because that has saved a lot of people from financial loss. But I must determine what I shall do in the State of Nebraska. None of these men in the Department of Agriculture or any of these other men in gardens over the country can tell me what I can do in Nebraska, because they have told me I could not raise belladonna and I could not raise digitalis, and the very things they told me I could not do, I set out to do and I did it. If anybody wants to stimulate me to get into a particular field, just let them tell me I can't do it.

I have found that young men have become interested, from this garden work, in the growing of drug plants, and every year as these young men go out, some of them graduates and others first year men and second year men, they say, "Dr. Lyman, can I have a few digitalis plants, a few belladonna plants, a few of golden seal, to start in my garden?" I always say yes, and I give them to them, and they take them out and start them. Most of them fail the first year and they come back to me and say, "My plants were no good," and I say "Well, here are my plants," and we talk the matter over and we find out what the difficulty is. Of course, sometimes they have simply stuck them in the ground and thought they would grow like potatoes—and they won't—and so they have tried again, and as the years have gone by I have found these men in different parts of the state growing their own little garden. Now it is of no commercial importance to those fellows, but they enjoy it. And, in addition to that, the people of that community, every one of them, I have found are interested in that young man, because he has got ideas that other people have not, and he is the coming druggist of that locality, and it is the best advertising proposition that was ever put before a community for a particular druggist; and I do not think that the people of Nebraska will lose any money because of the fact that this policy has been conducted in the University. From the efforts of these young men the people

of a community learn that the growing of drug plants is a work requiring endless labor and will undertake no foolish experiments. They learn without expense to themselves that the growing of drug plants does not mean an easy road to a fortune. Two years ago a freshman came to me in the spring and said, "Dr. Lyman, over here in Oak Creek Valley I and another freshman have rented 320 acres of land to raise drug plants. Now I have come to you to see what we shall plant." I said, "You come with me, young man," and out in the garden we went; and when we got through, he said, "Well, it isn't too late to plant corn."

J. U. LLOYD.

It seems to me one feature has been left out, and I think Dr. Stockberger will agree with me that it lies with him to utilize this for the advantage of the American people in the cultivation of drugs. At the meeting of the American Pharmaceutical Association in Kansas City, Mr. J. C. Huber of Fond-du-Lac, Wisconsin, the first man that tried to raise ginseng in America, came to me, I was chairman of the Committee on Papers and Queries, and said, "Professor, I am going to attempt raising ginseng." Now listen, we had depended upon senega from West Virginia, from the mountains of that state, and we had been getting little spindling plants the size of a knitting needle ever since America was discovered, and two years before that they found senega in Wisconsin with tops the size of your fist nearly, so large that we questioned whether it was senega or not. I said to Mr. Huber, "why don't you raise senega? You know senega will grow in Wisconsin; why concern yourself with the growing of ginseng that is native to the forests of Kentucky and Virginia?" Well, he went ahead and failed on ginseng when he could have succeeded with senega. On the old farm in Kentucky there has not been a crop of hemp raised for seventy-five years, and they can't kill it. Every fence corner on the place comes up with hemp. It grows naturally down there; it can be raised elsewhere, but you can not help raise it in Kentucky if you get a start. Out in Washington they raise digitalis, and it is best on the hillside. It has become a weed, and a pest to the farmers on the hillsides of Washington. How can a grower elsewhere compete with that digitalis? When they write to Dr. Stockberger from different parts of the country, he can say to the people in the South, "Yes, you can raise camphor; you can raise so and so down South, but do not trouble about drug plants that grow best in the North." Locate the part of the country where the plants will or do grow, but do not try to raise plants where they do not want to grow. To study the parts of the country where these drugs can best be used and where they will grow naturally will be a great help. I believe that is one of the opportunities in the direction of raising drugs, and there will be found a place in the United States where they can raise henbane but we must find the best locality. Mr. Fuller is the man who can make a success of drug growing. Manufacturers can hire trained men to go to the field, and keep an account of the expense, and probably supply themselves, and be sure of a supply for years to come. But Mr. Fuller, as I understand it, is in the commercial side of the business and he will make a success of it. He is the man who may sometime have a digitalis field out in the State of Washington, a senega field in Wisconsin and a hemp field in Kentucky; just as cannors locate their different plants in the sections of the country best suited for growing their supplies.

To this I will add that when I entered the room at the meeting of the American Pharmaceutical Association (1888), in Detroit, Dr. Charles Rice took me by the arm and said: "Lloyd, I want to show you something that is of exceptional interest." He took me to the part of the Exhibition Display, and introduced me to Mr. A. M. Todd, of Ottawa, saying: "Lloyd, I want you to study this peppermint display. Mr. Todd is on the right track. He will make a success of peppermint growing, thus giving to America another home production, improved by cultivation." For several successive years thereafter, Mr. Todd corresponded with me on the subject of the peppermint problem, sent me specimens of the oil, as well as of the menthol obtained therefrom, finally making a magnificent success of the peppermint industry. Now to the text. If these experiments had been made in an inhospitable country, soil and climate, utter failure would have resulted. A magnificent opportunity lies before America, by reason of the fact that we have in America every climate, soil and condition necessary for the introduction of all that America needs;—mountain, valley, rich woodland and desert are at our command. And, all America will profit by such wise guidance as Dr. Stockberger offers and Dr. Fuller supports

L. E. SAYRE.

I have been obliged to depend upon the United States Government and upon the gentlemen who have interested themselves in raising medicinal plants, in order to get authentic material for experimental work, and I want to say one of the best things which the United States Government has done with regard to that has been to stimulate an interest in this subject and to give us, who are in the educational institutions, material which we can operate with.

Do not be discouraged if ninety-nine percent are failures. I heard a paper read by one of the best business men in the country the other day in which he said that from seventy-five to ninety percent of the business men were failures, and he proved that by statistics. Nevertheless, do not be discouraged. I advised a young man to raise golden seal some five years ago, and to-day on a half-acre farm he is making two thousand dollars a year.

W. W. STOCKBERGER.

I wish to say one more word, I think we must protect from the results of their ignorance the impecunious man or woman who can not afford to invest even five dollars in a small quantity of seed and then get nothing from it. On the other hand, it is the duty of the educational institutions to carry out experimental work in their drug gardens since the facts secured will ultimately have great value for the people in the locality where the garden is located, and thus a double purpose will have been accomplished. I should like to see a great big drug garden in connection with every School of Pharmacy, and to act on Dr. Lloyd's suggestion and begin to work out individual problems. Nobody will try to rob you, Dr. Lyman, of any part of the field of work which you are so splendidly developing and I must say that no word that I have heard for a long time sounds so good to me as Dr. Lyman's statement that the drug garden is the problem of the School of Pharmacy.

WAR EMERGENCY FORMULAS.

Under above caption F. A. Upsher Smith presents, in the *Northwestern Druggist* for February, the timely subject of displacing glycerin and sugar in many of the preparations of the U. S. P. and N. F., and suggests work of investigation relating thereto. The statement made, "that allowing 50 pounds of glycerin and 500 pounds of sugar for each of the 40,000 drug stores per year, we arrive at an estimated yearly consumption of two million pounds of glycerin and twenty million pounds of sugar," is sufficient for emphasizing the possibility of conservation. In the January issue of the *JOURNAL OF THE A. PH. A.* will be found a related article by Prof. Curt P. Wimmer.

Mr. Smith has brought the matter to the attention of the U. S. P. Revision Committee and the N. F. Committee. A War Emergency Addendum to the *British Pharmaceutical Codex* has been published, containing formulas for the preparations in which glycerin and sugar have wholly or in part been displaced. There are many preparations of the U. S. P. and N. F. in which sugar and glycerin are employed because under normal conditions, no base, solvent or adjuvant is better or more economical; war-time conditions have changed this phase, and the proposition is now presented from the view point of conservation, provided the medicinal value of the active constituents is maintained.

Unfortunately, no one can foretell the duration of the war. France and Italy, before the war, were nearly self-supporting relative to sugar; the United States, Canada and England were importing countries. It has been determined that during this year the United States must cut down its consumption by 15 percent. Relative to glycerin, the situation is perhaps more serious. We lacked in preparedness for the war; we now know that if the war continues the shortage of the two important products mentioned will become more pronounced and presents the timely question of preparation for the emergency. There are question that will be involved in the proposition, namely, official recognition of the *succedanea*, and standards for the same.

The subject should be discussed in Branch meetings, by local associations, and in joint meetings of physicians and pharmacists. Care should be used in selecting substitutes so that no shortage will be created of these products, as this would only be a shift instead of relief.

SOLVENTS IN PHARMACY.*

(Continuation of "Precipitates in Fluid Extracts," 1885.)

(The paper was written in 1885, see Introduction, p. 940, November 1917.)

BY JOHN URI LLOYD.

PART II.

The solvents considered in this series of experiments are **Solvents Considered.** (excluding acids and alkalies) those that appear as being of possible use in plant pharmacy, as solvents or excluders, either alone or mixed. They are numbered herein, successively, and may, for our present purpose, be most rationally classified by group solvent relationships. Three classes, then, result (Table I), as follows:—

TABLE I.

| | |
|----------------------------------------------------|-----------------|
| 1st, Glycerin, | |
| 2nd, Water, | |
| 3rd, Alcohol (U. S. P. 1880), ¹ | <i>Class 1.</i> |
| 4th, Methyl Alcohol. | |
| 5th, Acetone, | |
| 6th, Chloroform, | |
| 7th, Amylic Alcohol, | <i>Class 2.</i> |
| 8th, Acetic Ether, | |
| 9th, Sulphuric Ether (U. S. P. 1880). ¹ | |
| 10th, Benzol, | |
| 11th, Carbon Disulphide, | |
| 12th, Benzin, | <i>Class 3.</i> |
| 13th, Turpentine Oil (rectified), | |
| 14th, Liquid Petrolatum. | |

Class 1—Glycerin, Water, Alcohol and Methyl Alcohol. The members of Class 1 mix² with each other in all proportions, regardless of order of mixing them. It is impossible to make any combination that is not transparent. Were it not for the erratic acetone of Class 2, which refuses to mix with glycerin, this substance (acetone) might also be included in Class 1, because acetone mixes freely with the other members of this class. The members of Class 1, when pure, are either odorless or possessed of no very marked odor. Excepting glycerin, they evaporate readily and are easily distilled.

Class 2—Acetone, Chloroform, Amylic Alcohol, Acetic Ether and Sulphuric Ether. The members of Class 2 mix with each other in all proportions. It is impossible to make any combination of any or all of these substances, that is not transparent. The members of this group are all volatile, and excepting amylic alcohol, which boils at about 270° F., may be easily distilled. They are all possessed

* Continued from p. 949, November 1917. Thanks of the author are extended to Miss Eda Van Guelpen for drawings of cuts presented, to Miss Margaret Stewart for editorial oversight and to Miss Anna Longstreet for typewriting care.

¹ It is essential that liquids in exact accord with those used in the experimentation originally instituted be employed. Hence, neither Alcohol U. S. P. nor Ether U. S. P. 1910 is now admissible. (J. U. L., 1917.)

² Where the term *mix* or *miscible* is employed, perfect solution is to be understood. All these liquids may be mechanically mixed by agitation or emulsifying processes.

of marked odors, and these odors, beginning with acetone which is less decided than the others, are successively pleasant, but upon reaching sulphuric ether they become unpleasant, that of amylic alcohol being disagreeable.

Class 3—Benzol, Carbon Disulphide, Benzin, Turpentine Oil and Liquid Petrolatum. The members of Class 3 mix with each other in all proportions. They are, excepting liquid petrolatum, volatile at ordinary temperatures, some of them being very volatile. Excepting benzol and liquid petrolatum, they are all possessed of disagreeable odors.

**General Remarks
on the Three Classes.**

Considering these fourteen liquids in the order given, it is found that between the extremes no solvent affinity whatever exists, but as we progress down or up the series, affiliation increases.

Thus, glycerin, which mixes clear with any member of Class 1, is practically indifferent to all of Class 2, and will not mix freely with any member or combination that may be made of Class 3.

Water is indifferent to all the members of Class 3. Of Class 2 it mixes in all proportions with acetone, takes up of sulphuric ether largely, and is indifferent to the other members.

Alcohol mixes freely with all the members of Classes 1 and 2, and is miscible in varying degrees with all but liquid petrolatum of Class 3.

Methyl alcohol mixes freely with all the members of Class 2, with one member (benzol) of Class 3, and is very friendly towards the other members of the third class. Indeed, the only practically indifferent liquid of the entire list to methyl alcohol is liquid petrolatum.³

Thus it is seen that a progressive relationship seems to exist between the members of Class 1, increasingly for certain members of the other classes, as we progress from glycerin to methyl alcohol.

When we step into Class 2, we find that the first member, acetone, is remarkable in that it mixes freely with all the liquids of the entire list excepting the extremes, glycerin and liquid petrolatum. It has no other incompatible.

Next, chloroform is possessed of fully as marked affinities, exclusive of the first two members of Class 1, water and glycerin, with which, however, it very slightly affiliates. Chloroform and amylic alcohol mark the central feature in the list, for from these two as we progress towards the extremes we find increasing antagonisms. Amylic alcohol has practically the solvent relationships of chloroform. It mixes partially with liquid petrolatum, and freely with all the other liquids excepting water and glycerin, in each of which it is sparingly soluble. Begin with amylic alcohol and pass to Class 3. Adding successively the same bulk of each liquid, and shaking after each addition, the liquid remains transparent to, and including, liquid petrolatum. Pass now in the other direction and add to the foregoing mixture each liquid, successively, to the water. Constant transparency results, but the water immediately decomposes the mixture, the line of division being remarkably changed from what might be anticipated. (See Process of Establishing Solubilities.)

³ In these experiments equal amounts are shaken together. Liquid petrolatum and methyl alcohol separate, leaving the surface film between them about where it would be in case neither dissolved the other. See "*Process of Establishing Solubilities.*"

Acetic ether will not, in equal amounts, mix with any member of Class 3, and with only two of Class 1, water and glycerin being with it immiscible.

Sulphuric ether, U. S. P. 1880, mixes freely with all members of Class 3 excepting liquid petrolatum.⁴

Passing now to Class 3 we strike first benzol, the most cosmopolitan member of that class. It affiliates⁵ with two members of Class 1 (alcohol and methyl alcohol), with all but one member of Class 2 (acetic ether), with which it unites one to two parts. In this respect it is an exception, for any other member of the entire list that freely dissolves sulphuric ether, will also dissolve acetic ether freely. It refuses to unite with water and glycerin in any proportion, thus indicating the relationship that, in our present study, places it in Class 3.

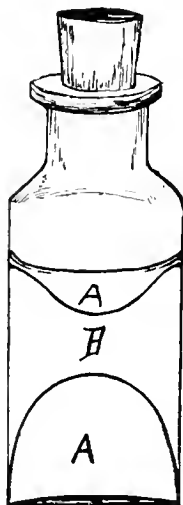


FIG. 4.

A, A—Carbon Disulphide.
B—Glycerin. Position assumed on shaking, Fig. 5. Note meniscus, lower A, reverse of Glycerin (A), Fig. 5.



FIG. 5.

A—Glycerin.
B—Carbon Disulphide. Position assumed when carbon disulphide is poured carefully on the surface of the glycerin, narrow container.

The second member of Class 3, carbon disulphide, mixes freely with all but one member (acetic ether) of Class 2, and mixes with only one (alcohol) of Class 1.⁶

⁴ This is important,—indeed, one thought of the writer is the opportunity of establishing standards of purity by behavior of mixed liquids, a very entrancing research. For example, the separation of sulphuric ether (U. S. P. 1880) from liquid petrolatum, is due to the water contained in the U. S. P. ether, 1880. Water-free (Squibb's Anhydrous) ether mixes with all the liquids of Class 3. In order to parallel the experiments (1885) in which sulphuric ether U. S. P. 1880, specific gravity 0.750, was used, ether of the same strength must be employed. This is a very delicate test for water in ether. J. U. L. 1917.

⁵ Mixes in equal amounts, by measure.

⁶ In this connection, the contact meniscus of three of these,—methyl alcohol, water and glycerin—is fruitful as regards their curvatures, these distinctions being part of my study in connection with capillarity. The mixture of carbon disulphide and glycerin is remarkable because the lighter liquid, glycerin, s. g. 1.250, if the cylinder be small in diameter rests beneath the heavier, CS_2 , s. g. 1.268, when the glycerin is added first (see figures 4 and 5). The cause of this phenomenon, a most interesting study and very fruitful, in its relationships, is studied in another place (not yet published).

Benzin, turpentine and liquid petrolatum stand practically together in their affinities. None will mix with any member of the first class. All mix freely with the three first members of the second class,—acetone, chloroform and amylie alcohol. They all dissolve in acetic and sulphuric ether, but vary somewhat as regards proportion. Liquid petrolatum is separated from the others of this (3rd) class, in that it is odorless, and is not volatile at ordinary temperatures. Thus liquid petrolatum, terminating Class 3, stands isolated as does glycerin in heading Class 1. In all respects these two liquids are so antagonistic that it may be said that from the angle we now consider them, they are the antithesis of each other.

Solutions of Solvents and Mixtures of Neutral Solvents.

We are now led to an unmentioned and yet very well-known phase of the act of solution that confronts us when we consider the separates of the three classes.

Mix any two miscible solvents, *e. g.*, alcohol and water, and, as has been stated, the solvent action of the resultant liquid is different from that of the original. For example, equal parts of water and alcohol, mixed, will not dissolve as much salt and shellac as would either alone (water, the salt,—and alcohol, shellac). Add to a mixture of water and alcohol, successively, other affiliating liquids, and with each addition the solvent power of the product is altered. Change the proportions of the ingredients and, it becomes possible to make a solution of one liquid in another and then, by adding a third liquid, to throw more or less of one or the other constituent (perhaps both) of the first mixture out of solution. In other words, to precipitate it.⁷ In like manner other liquids may be added, and thus produce precipitate after precipitate, successively, all perhaps finally redissolving, when the strain is broken by the addition of an affiliating liquid. Each new mixture becomes a new menstruum, each new menstruum is a solvent having distinct affiliating qualities, as is shown by the disappearance or increase of the successive precipitates, and also indicated by the shifting of the line of demarcation as each liquid is added. These qualities present great opportunities in manipulative pharmacy.

Mediators for Uniting Immiscible Solvents.

In mixing neutral solvents we are led to results that occasionally seem to conflict with our theories, if the characters of separated ingredients, as aforementioned are alone taken into account. It is possible to make combinations that will enable liquids of opposite characters to coalesce. We can, for example, by using a mediator, unite some proportion of any member of Class 1 with any member of Class 3.

Thus, if two parts of acetone be mixed with two parts of glycerin, the mixture will at once separate into two layers, about equally divided. Add now one part of methyl alcohol and agitate;—the liquid immediately becomes transparent, forming a single menstruum. The methyl alcohol acts as a mediator, affiliating the three into one, which, however, has a different solvent action from any of its constituents.

Again. Mix two parts of acetic ether with two parts of water, and they will separate. Add now one part of alcohol, and the two layers immediately unite, the

⁷ We have in previous articles (*Proc. Am. Pharm. Assoc.*, 1870-1885) endeavored to make it plain that a precipitate, or better, *separate*, may be either a solid or a liquid, and either heavier or lighter than the bulk of the liquid.

three forming a transparent solution. Let us, with this thought, introduce Table II, formulated as follows:—

Begin with the last member (No. 14) of the list, liquid petrolatum, and add successively two parts of each that precedes, agitating after each addition. They will mix transparent until No. 9 is reached (sulphuric ether), when the solution becomes milky, and remains milky after No. 8 (acetic ether) is added, but it again becomes transparent upon the addition of No. 7 (amylic alcohol), remaining transparent therefrom to and including No. 3 (alcohol). It will be seen that an incompatible appears when we add No. 9 (sulphuric ether):—⁸

TABLE II.

| |
|-------------------------------------------|
| Liquid Petrolatum, |
| Turpentine Oil (rectified), |
| Benzin, |
| Carbon Disulphide, |
| Benzol, |
| Sulphuric Ether (U. S. P. 1880) (clouds), |
| Acetic Ether (clouds), |
| Amylic Alcohol (clears), |
| Chloroform, |
| Acetone, |
| Methyl Alcohol, |
| Alcohol (U. S. P. 1880), |
| Water (separates into two sections). |

Precipitation or cloudiness may be avoided by merely altering the order of mixing, as follows (Table III), shaking with each addition:⁹

TABLE III.

| |
|--------------------------|
| 2 Cc. Liquid Petrolatum, |
| 2 Cc. Turpentine, |
| 2 Cc. Benzin, |
| 2 Cc. Carbon Disulphide, |
| 2 Cc. Benzol, |
| 2 Cc. Amylic Alcohol, |
| 2 Cc. Chloroform, |
| 2 Cc. Acetone, |
| 2 Cc. Methyl Alcohol, |
| 2 Cc. Sulphuric Ether, |
| 2 Cc. Acetic Ether, |
| 2 Cc. Alcohol. |

In this case the mixture remains transparent from the beginning to the end. Let us now consider

TABLE IV. (Not necessary to name in detail.)

⁸ This is not due to the *ether*, but to the water it contains. This phase of the subject presents a fruitful opportunity that cannot now be considered. If pure sulphuric ether be used (U. S. P. 1910) the liquid is clear, to the acetic ether. I infer that acetic ether water free will not cloud (Later Note, 1917). So pronounced is this influence that, if (Table No. III) Sulphuric Ether U. S. P. 1910 be used instead of that of 1880, the meniscus, on the addition of the water, is (1910) about 5, instead of (1880) which is 9.

⁹ In these experiments, owing to the convenience of measuring two (2) cubic centimeters in the cylinder employed (see Fig. 3, p. 948; also Figs. 8, 9 and 10) that amount is as a rule taken as the unit. Hence 2 parts, refers to 2 Cc. Any desired unit may be employed.

Begin with methyl alcohol, pass successively (Table I) to (and including) liquid petrolatum, then reverse and add to this mixture the chloroform, passing successively to (not including) water. The liquid is transparent from first to last.

Consider now the natures of these several ingredients (see qualities of the members of Table I). We find that (Table III) we have assimilated a mass of incongruities into a common whole, by dispersing (preventing surface films forming) each mixture as the respective liquid is added. Of the list, only two—chloroform and amyl alcohol—will mix in equal amounts with every member. The others exhibit varying solvent properties, each excluding wholly or in part, when taken separately, nearly half the members included in the list, many being practically insoluble in each other. And yet, the product above-named becomes, at the start, a menstruum of perfect transparency, and remains so to the end.

Add now to this transparent menstruum (Table III) two parts of water; immediate precipitation results, the upper liquid occupying *nine* (about) parts. (Fig. 6.) Add now two parts of glycerin,—the mixture practically *reverses* itself, the lower layer being about *five* parts (Fig. 7).¹⁰ The original mixture

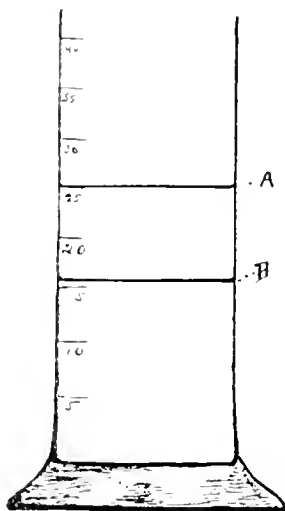


FIG. 6.

A—Air surface
B—Meniscus between liquids

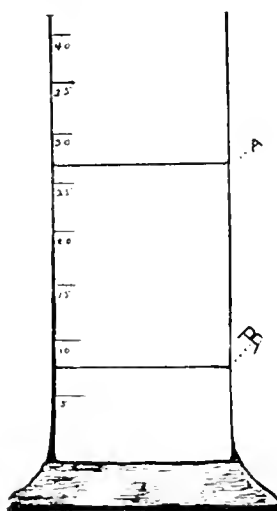


FIG. 7.

A—Air surface,
B—Meniscus between liquids.

is not a solvent for either of these liquids, but each possesses selective affinities for certain members of the group, resulting in the aforementioned remarkable movement of the line of division. Indeed, when we consider the fact that neither glycerin nor water will mix with any member of the third class and that but one member of the third class will mix freely with any member of the first class, and that the members of the second class will in no case mix with all the members of the first and third classes, it is apparently illogical to expect that we could make a mixture

¹⁰ In repeating these experiments, slight deviations in the final line of separation are likely to occur, even to the extent of one division. This is due, not alone to temperature, but to the "shaking" process of admixture. This (shaking action) has been with me subject for a special study, which can not here be intruded. Physical action seems an important factor. Most perplexing discordant results have, in some instances, not as yet been accounted for.

of liquids from the foregoing list that would dissolve liquid petrolatum, glycerin, and water, even in any appreciable amount.

We have to this point considered separates¹¹ of two layers only.

Three Separates. It is impossible, so far as our experimentation extends, to make a mixture of equal amounts of either the first and second classes, or of the second and third classes, that will separate from each other in three layers. It is possible, however, to select from the central class, and the two extremities, liquids that refuse to unite, forming three layers. Thus a mixture of

- 2 Cc. Glycerin,
- 2 Cc. Acetone,
- 2 Cc. Liquid Petrolatum,

on being shaken together, will separate into three layers, each approximating the amount of the respective original liquid. (Fig. 8.) This equilibrium may be broken by the addition of any solvent that exhibits an attraction for two of the members, in which case one surface film disappears and two layers result. Thus the addition of two parts of water to the aforementioned ingredients will combine the glycerin and acetone (two layers resulting), both (glycerin and acetone) being miscible with water, the liquid petrolatum being excluded, as it is indifferent to all of them. (Fig. 9.) We are again led to the supposition that it must be impossible to unite such opposites (as glycerin and liquid petrolatum) in a single menstruum. To do so, it would appear necessary to construct a solvent (restricted to liquids) such as Paracelsus mentioned and Von Helmont dilated on, under the name Alkahest, or Universal Solvent.

Neutral Solvent It is well known that a solvent capable of holding a solid substance in solution need not necessarily be capable of totally redissolving it after it has been precipitated. It is much easier to produce precipitates than it is to redissolve them in the same solvent. This, too, even though no change to crystalline condition has resulted. Liquid substances, when insoluble in a menstruum, differ from solid precipitates only in being liquid separates. With them, the rule governing resolution of solids holds good. A precipitated liquid in fine division may be very quickly dissolved in an appropriate menstruum, but, if agglutinated into material drops, or resting in layers, it may dissolve very slowly. Hence it is that the order in which liquids are mixed may become of importance in pharmaceutical manipulation.¹² If a selection of the liquids herein considered be mixed in a certain order so as to avoid drop (agglutinated) separations, the liquid may be transparent from first to last, the ultimate result being a clear liquid having the power of dissolving further amounts of each of its constituents.

If, upon the other hand, the same liquids and the same proportions be maintained, but a different order of admixture employed, the mixture may be continually precipitating (paralleling rain in the air), the final result being a liquid precipitate that refuses to redissolve. This fact is illustrated by first making a mixture, as follows (Table V), shaking after each addition:—

¹¹ This term is employed to designate the separated layers of liquids. In the study of the "meniscus" as yet unpublished, it is constantly used. See as examples Figs 4 and 5. Also the different appearances of the meniscus separating the liquids in the other illustrations.

¹² Sometimes, as in making emulsions, the reverse of solution is desired. In these it is desired that the surface films be not easily broken.

TABLE V.

| |
|--------------------------|
| 2 Cc. Liquid Petrolatum, |
| 2 Cc. Turpentine, |
| 2 Cc. Benzin, |
| 2 Cc. Carbon Disulphide, |
| 2 Cc. Benzol, |
| 2 Cc. Amylic Alcohol, |
| 2 Cc. Acetone, |
| 2 Cc. Methyl Alcohol, |
| 2 Cc. Sulphuric Ether, |
| 2 Cc. Acetic Ether, |
| 2 Cc. Glycerin, |
| 2 Cc. Alcohol, |
| 2 Cc. Water. |

This mixture is *clear* until the water is added (see also Table IV).

Repeat now the experiment, mixing the same liquids in the following order:—

TABLE VI.

| |
|--------------------------|
| 2 Cc. Water, |
| 2 Cc. Liquid Petrolatum, |
| 2 Cc. Glycerin, |
| 2 Cc. Turpentine, |
| 2 Cc. Benzin, |
| 2 Cc. Carbon Disulphide, |
| 2 Cc. Benzol, |
| 2 Cc. Amylic Alcohol, |
| 2 Cc. Acetone, |
| 2 Cc. Methyl Alcohol, |
| 2 Cc. Alcohol, |
| 2 Cc. Sulphuric Ether, |
| 2 Cc. Acetic Ether. |

The result will be a mixture that is continuously sectional or emulsified,¹³ and yet, excepting the order of arrangement, the liquids are from the beginning in exactly the same proportions employed in the previous experiment. At no point is the mixture possessed of the same solvent power or the same pharmaceutical opportunities as at any other point. And, at no point does one mixture (Table V) parallel the other (Table VI). The study of such phenomena as this is complicated indeed. Pharmaceutical *art* (Plant Pharmacy) depends in its outreaches largely on the application of processes established by the investigation of such problems as these.

Breaking the Surface Film. A Cosmopolitan Solvent.

From a consideration of the *principles* involved in the foregoing line of experiments, regarding surface films and contact curves,¹⁴ it would seem that it might be possible to make a selection of members of the foregoing series in such a manner as to prevent the formation of the surface films, leaving finally several free bonds of attractive associates, thus making a

¹³ Each mixture is an emulsion which, if allowed to stand, would separate into sections. The study of emulsions is most important and scientific. Research must yet be applied to this phenomenon. My further researches in contact films, capillarity, mass action and connected phenomena, as yet unpublished, show that pharmacy has herein a great scientific opportunity.

¹⁴ Continuous mention is being made of division lines (surface films and meniscus) between liquids, but no direct attention has been called to them. They, however, have been the subject of my some years' empirical study.

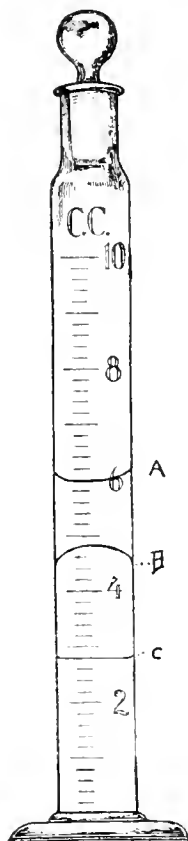


FIG. 8

A—Air surface.
B—Upper liquid meniscus.
C—Lower liquid meniscus.

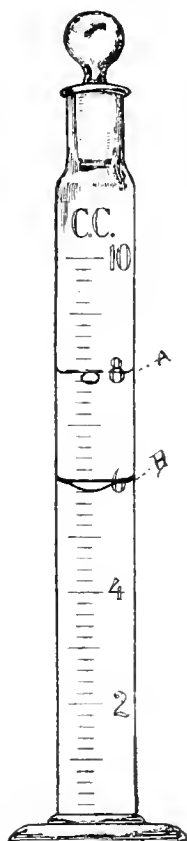


FIG. 9.

A—Air surface.
B—Liquid meniscus. (Note pendant drops).

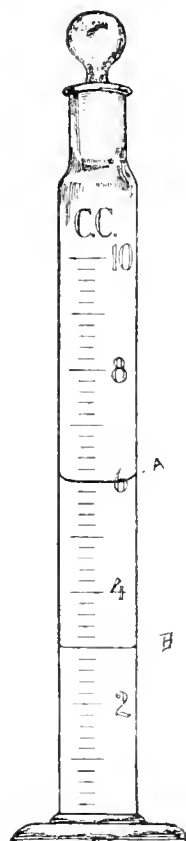


FIG. 10

A—Air surface.
B—Meniscus between liquids.

solvent that will be capable of breaking other contact films and consequently of dissolving, more or less, liquids that are opposite in character.¹⁵ On the other hand, it might seem that if a mixture be so constituted as to possess an affinity for either extreme, it must be passive to, or repulse the opposite. Thus, if it be composed of a mixture of solvents out of Classes 2 and 3, that, when combined, have free bonds of attraction for, and possess the power of dissolving liquid petrolatum, it would seem natural to expect it to refuse to dissolve water or glycerin. The reverse is also probable, for it appears irrational to expect that a liquid compounded of Classes 1 and 2 can dissolve liquid petrolatum, which separates from each member of these classes. Carrying this thought further, it seems that if it is possible to devise a mixture capable of dissolving the three incongruities, liquid petrolatum, water and glycerin, it will also dissolve more or less of all fats and oils, as well as other substances soluble in any intermediate liquid of this list.

¹⁵ This writer has observed that liquids capable of completely dissolving each other produce no surface films when mixed in any and all proportions. The term "free bonds of attraction," introduced (coined) herewith, seems to apply in directions where an interlaced solvent is unsatisfied in any class direction. Hence, the expression, "free bonds of attractive associates."

In accordance with this line of reasoning the apparently impossible is to be sought, *e. g.*, a solvent capable of dissolving the extremes, glycerin and liquid petrolatum, neither of which dissolves the other, and neither of which vaporizes into the other. A mixture of the following liquids produces a menstruum of these exceptional qualities. At no time is a contact division (meniscus) possible in making this mixture,¹⁶ regardless of the order of mixing (Table VII):—

TABLE VII.

| | |
|----|--------------------------------------|
| 2 | Cc. Benzol, |
| 10 | Cc. Sulphuric Ether (U. S. P. 1880), |
| 4 | Cc. Acetic Ether, |
| 2 | Cc. Amylic Alcohol, |
| 2 | Cc. Chloroform, |
| 10 | Cc. Acetone, |
| 10 | Cc. Methyl Alcohol, |
| 6 | Cc. Alcohol (U. S. P. 1880). |

Owing to variations in vaporizing points of these ingredients, exposure, even brief, materially alters the solvent reactions of this mixture.

In this menstruum all essential oils tested (those in commercial use and all others attainable), and all members, from 3 to 13 (inclusive) of the three classes of liquids named herein, dissolve in all proportions.¹⁷

If the mixture is made by adding the material to be dissolved in small portions at a time (drop by drop with liquid petrolatum), shaking after each addition, it will also dissolve:—¹⁸

| | |
|------------------|--------------------------------|
| $\frac{2}{7}$ th | its bulk of Water, |
| $\frac{1}{7}$ th | its bulk of Glycerin, |
| $\frac{1}{16}$ | its bulk of Liquid Petrolatum. |

Fixed oils, such as Olive Oil, Castor Oil, Linseed Oil, Cotton Seed Oil, Cod Liver Oil and others tested, dissolve freely,—Castor Oil in all proportions. It dissolves every alkaloid tested, even Morphine being very soluble.

Possibly in no other manipulative direction is the influence of **Temperature.** temperature more important than in the study of solvents and the meniscus of separation. Temperature, in the preceding investigations, was as near 70° F. as attainable, but there were deviations which should have been recorded.¹⁹ Whether or not such reactions as these can be classed as altogether or in part chemical, is problematical. Nevertheless, “mass attractions” that coalesce seemingly unchanged liquid bodies, are most pronounced, and in these, *temperature* applies as directly as in true chemistry.²⁰ In other directions,

¹⁶ If absolute alcohol and pure sulphuric ether (free from water) be used, the qualities as a solvent of extremes are enhanced.

¹⁷ The original notes carry experiments with the ordinary fixed oils. These are omitted, not because they are of no value, but because they open up a series of problems that should be discussed if the record is printed.

¹⁸ Statement of 1885 is approximately verified 1917.

¹⁹ The temperature of 32° F. is finally accepted as most easily attainable, and the best standard.

²⁰ From one view, this word might better be replaced by *liquid*. From another, *liquid* does not fully answer. For example, solid camphor and thymol, triturated together, dissolve each other, a liquid resulting. In like manner, Di-cerberine sulphate triturated with thymol produces a liquid. In these cases solids act as solvents. Indeed, gases may do so. If under a bell glass, a piece of thymol is placed near a piece of camphor, each liquefies the other, by reason of their respective vapors, the thymol first becoming fluid.

as shown in studies of the meniscus between liquids (not yet published) even greater influences are observed than with oils.²¹

The Addition of a Solvent May Over-balance a Perfect Solution and Produce Separation.

It is found that the addition of one solvent to an association of solvents in perfect solution may produce precipitation of one or more of the constituents. Thus, if two parts of alcohol be mixed with two parts of chloroform, and to the clear solution two parts of water be added, separation ensues, the liquids producing two sections about equally divided. The chloroform holds part of the alcohol, and the water the rest of it. However, the hydro-alcoholic layer above the line holds some chloroform in solution and the chloroformic-alcoholic layer below the line holds some water, so that in the equilibrium that is established, all the liquids are partly represented in both sections. This is also exhibited in the separation shown in Tables V and VI, when the water is added to the clear liquid.

Process of Establishing Solubilities.

Where liquids have no solvent affinity whatever, for example liquid petrolatum versus either water or glycerin, a mixture of them in any possible proportion, separates, on standing, each in its full amount. But, if they mutually coalesce, even slightly, the only satisfactory method to determine their solubilities appears to be to add one liquid, drop by drop, to a given bulk of the other, shaking well after each addition, until finally, milkiessness follows. To establish reverse solubility, reverse the liquids. This is, in our experiments, accepted as establishing the solvent point of each for the other, the decision being *not from the increase in bulk of the mixture*, but from the amount of the respective liquids added. Here, too, care must be employed to establish the temperature with exactness, if a record of proportions is made.

Change of Location of Line of Demarcation No. Criterion of Solubilities.

The change in position of the line of demarcation does not show the proportion dissolved where two liquids are shaken together, and allowed to separate. The division line then locates itself between the *balanced* new liquids. Although each has dissolved much of the other, the meniscus of separation may be on or near the original line.

Example. If 2 Cc. of alcohol, 2 of water and 2 of chloroform be mixed, the line of separation will be at $5\frac{1}{2}$, indicating that the chloroform has dissolved $2\frac{1}{2}$ parts, which would make it take $\frac{1}{2}$ part of water. (Fig. 10.) The fact is, however, that most of the water is in the upper layer. Again, take liquid petrolatum and the mixture of Table VII. The addition of liquid petrolatum, drop by drop, demonstrated the solution of $\frac{1}{16}$ th its bulk. But if we mix equal amounts (5 Cc. each), on separation the liquid petrolatum *rises* $\frac{3}{4}$ th Cc., which would indicate that it was not at all soluble in the liquid that had previously been shown to dissolve it.

Perhaps a more forcible exhibition of such a disturbance is shown in Table IV and "Breaking the Combination," where, in a transparent compound of 24 Cc.,

²¹ The separation of dissolved solids may be very slow when the solution is cooled below their saturation point. Liquids separate almost instantly. Very slight temperature alterations produce immediate sectional disturbances. The temperature change between opalescence and transparency may be too slight to affect the ordinary thermometer.

the addition of 2 Ce. water produced nearly an equal division. Since the water is mainly in the upper layer, it apparently dissolved many times its bulk of the liquid. In reality, it became a disturber, breaking the equilibrium of the complex solution, taking its place as a part of the section with which it chiefly affiliated. Very difficult would it be to establish the exact amount of the integral constituents in either section.

Apply now the foregoing to the series of solvents considered in this paper, beginning with No. 14, liquid petrolatum. It is found that on mixing two parts of each, when the sulphuric ether and acetic ether are successively added, the mixture clouds (see Table V). Then, until the water (No. 2) is reached, the solution is transparent, but on addition of two parts of water, separation ensues, the lower layer consisting of *four* parts instead of two, as might possibly be expected (two parts of water having been used) if division lines were our guide. Continuing the addition of successive portions of water for a reasonable time, it is seen that there is a nearly uniform increase of the lower layer over the two parts of water added, as is shown by the following table:—

| | | |
|------------------------------|------------------|--------|
| 2 parts water produce about | 4 | parts. |
| 4 parts water produce about | 6 $\frac{1}{2}$ | parts. |
| 6 parts water produce about | 9 | parts. |
| 8 parts water produce about | 11 $\frac{1}{2}$ | parts. |
| 10 parts water produce about | 14 | parts. |

Finally, if carried far enough, the addition of water results practically in the separation of only the proportion added.

In these examples, the equilibrium established after the water was added, resulted in the formation of two liquids that changed in constitution with each addition of the single substance, water. Simultaneously the solvent power of the sections altered, as is shown by the varying proportions (Movement of Meniscus) that result while the additions were being made. Finally, the members of the third class, especially liquid petrolatum, are nearly separated from the members of the first class, especially glycerin and water, while the intermediate members arrange themselves according to their affinities, in varying proportions in the two layers. After this, the addition of water can not decrease the upper layer, and upon the other hand liquid petrolatum in any amount can not dissociate the lower layer.

**An Endless Series of Solvents
Produced by Neutral Solvents
Combined with Plant Constituents.**

Whenever we abstract what is apparently a single substance from a plant, by means of water or alcohol, we form at the same time, as the solution progresses, a series of new solvents, having successive powers of abstracting other plant constituents. Thus are formed a continuously changing line of new liquids, that may be of as many different qualities as it is possible to vary the proportions of the original liquids (resulting from solution of solids), these becoming *new* solvents, in their subsequent action on the soluble plant materials.

Each solid substance that the menstruum dissolves, becomes in turn a part of a new liquid, which is then a thing in itself, and may itself dissolve another substance, insoluble in the original menstruum, thereby forming a menstruum quite different from either of the preceding, and which is capable of dissolving a third substance, a new liquid springing thus into existence with each successive change. No solid

body is present at any time after the solution has formed, and yet the *solution of a solid* produces each new solvent.²² We have a mixture of liquids possessed of individual solvent qualities, as much so as though we had mixed various liquids such as ether and water. Finally, the last liquid formed may not be able to hold in solution a substance that, originally dissolved, constituted a part of the first liquid. This body may then in part be thrown out of solution, resuming the solid form as a precipitate. In so doing, it alters the attributes of the solvent and starts a chain of *backward* reactions and precipitations. Such a "*separate*"²⁴ may be either liquid or solid. It may rise to the surface, or it may subside. It may be visible (solid), or invisible (liquid). It may be mucilaginous or gelatinous, as transparent as the medium it rests in, but yet not a true liquid or a pronounced solid.²³ As this "backward" reaction follows, chains of alterations and precipitations result, so familiar to persons perplexed by ever-altering plant solutions. Bold must be the man who announces that he comprehends the interchanging rearrangements continuously taking place in a solution of associated plant constituents, seemingly stable and apparently quiescent.

Our three classes of menstrua, with their fourteen numbers (see Table 1) thus afford *in themselves*, as various proportions are used, the possibility of an infinite line of combinations. The successive liquids, produced by means of varying abstractions of the constituents of a single plant, may also dovetail into chains of compound solutions in which lines of separation are lost as these substances coalesce, each into the others. In this field, no recorded experiences govern us. The explorer has not attempted even to systematize the various phases of the problem, as applied to the principal constituents of a single known drug, acted upon as a whole by any compound menstruum, indeed, by any simple liquid.

But before we attempt to suggest specific application of these possibilities to plant pharmacy, we need consider an as yet seemingly incidental, but yet all-important and striking feature of this series of experiments, *viz.*, the *plane of separation* (meniscus) between the separated classes of solvents. This study (meniscus) dovetails into and introduces *Capillarity*, one of the most vital influences in the practical application of pharmacy to plant preparations, but as yet totally neglected.

Addenda, 1917—In various directions, necessarily unmentioned, this writer has (since 1885) applied most pleasurable research, the results having been recorded in fragmentary manuscript form during the passing years. He hopes to be permitted to contribute to our Society next year a continuance of these old-time investigations, the same being localized on phenomena connected with capillarity,—the meniscus, surface films, what he denominates as the pendant drop (see the upper A, Fig. 4, and pendent drops A-B, Fig. 9), and "mass action" (term used originally) and physical influences connected with pharmaceutical problems. Let us then pass to the *Meniscus*.

²² This phenomenon is not restricted to plants, or plant products. See "Precipitates in Fluid Extracts," *Am. Pharm. Assn. Proceedings*, 1879-1885.

²³ This term may be considered very expressive of this reaction.

²⁴ In my opinion opportunities will be afforded researchers of the future to *see* the at present *invisible*. I can not but believe, for example, that there are zones, or emulsion surfaces, now *invisible*, but which yet will be *seen* by methods now unknown. This conclusion is furthered by the study of oils. Consider, as an example, the practically invisible globulus of tapioca in some forms of soup, enveloped in oil, water and mucilage.

JOURNAL OF THE

MAGNESIUM SULPHATE.*

BY JACOB DINER.

Common salt has been used as a purgative by the ancients and it is reported that Paracelsus and his followers employed the tartrates of potassium for similar purposes. But the attention of physicians was drawn to this class of cathartics by Glauber in 1658 through his discovery of the *Sal Mirabile* commonly known as sodium sulphate.

In 1663 the Duke of Holstein paid 500 thalers for the secret of the preparation of the long famous *Sal Polychrestus* or *Tartarum vitriolatum*, probably a mixture of the neutral and the acid sulphates of potassium.

Seignette, an apothecary of Rochelle, prepared the sodium and potassium tartrate in 1672. Three years later, 1675, Grew first observed the presence of a purgative salt in the springs of Epsom and this salt was afterwards identified as magnesium sulphate by Dr. Black.¹

The action of these salts was but indifferently understood for some time. The discovery of the phenomenon of osmosis² gave the first scientific explanation of the action of saline cathartics.³ Liebig⁴ simultaneously came to the same conclusion with Poisseuille, but did not publish his observations until some years later. However, the theory of Poisseuille and Liebig and many of their adherents that the endosmotic power of the saline alone determined its purgative action was disproven by the experiments of Aubert⁵ who compared three of the most important saline cathartics and found that sodium phosphate possessed an endosmotic power of over twice that of sodium sulphate, and this in turn had an endosmotic equivalent of nearly three times that of magnesium sulphate. Accordingly one would suppose that sodium phosphate would be the strongest saline cathartic and magnesium sulphate the weakest, while the very opposite is the case.

In 1854 Colin⁶ and later on Moreau⁷ performed the now classical experiment of injecting saline solution into an isolated loop of intestines and demonstrated the increase in volume of the aqueous contents. Still the nature and origin of this increase was not clear.

RELATIONS OF THE SALTS TO PERISTALSIS OF GASTRO-INTESTINAL CANAL.

McCallum⁸ felt justified, after a series of animal experiments, to draw the conclusion that all those salts which act as purgatives when introduced into the stomach or intestine, have the same action when injected subcutaneously or intravenously.

Meltzer and Auer⁹ proved that subcutaneous and intravenous injections of magnesium salts produce neither purgation nor intestinal peristalsis. The moderate peristalsis produced by exposing the intestines to air, by destroying the dorsal cord or by intravenous or subcutaneous injections of certain saline purgatives and the powerful peristaltic constrictions produced in all parts of the gastro-intestinal canal by intravenous injections of ergot, eserine, or barium chloride can be completely inhibited by an intravenous injection of magnesium sulphate or chloride in doses insufficient to embarrass the respiration to any serious degree.

The *post mortem* peristalsis of animals which received intravenous injections of magnesium sulphate is considerably less in evidence than that of normal animals.

* Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

Auer¹⁰ demonstrated in a series of experiments in which magnesium sulphate was injected into the jugular vein, in concentrations ranging from 1.7 to 25 percent, in amounts between 1 mil and 80 mls, that most of the rabbits showed no signs of purgation; the faeces passed during observation (2 to 4 hours) were dry and small in amounts.

Hay¹¹ summarizes his results as follows:

A saline purgative always excites more or less secretion from the alimentary canal, depending on the amount of the salt and the strength of its solution, and varying with the nature of the salt.

The excito-secretory action of the salt is probably due to the bitterness as well as to the irritant and specific properties of the salt and not to osmosis.

The low diffusibility of the salt impedes the absorption of the secreted fluid.

Between stimulated secretion on the one hand and impeded absorption on the other there is an accumulation of fluid in the canal.

The accumulated fluid, partly from ordinary dynamical laws, partly from gentle stimulation of the peristaltic movements excited by distension, reaches the rectum and produces purgation.

Purgation will not ensue if water be withheld from the diet for one or two days previous to the administration of the salt in concentrated form.

The absence of purgation is not due to the want of water in the alimentary canal but to its deficiency in the blood.

Under ordinary conditions, with an unrestricted supply of water, the maximal amount of fluid accumulated within the canal corresponds very nearly to the quantity of water required to form a 5 or 6 percent solution of the amount of salt administered.

If, therefore, a solution of this strength be given it does not increase in bulk.

If a solution of greater strength be administered it rapidly increases in volume until the maximum is attained. This it accomplishes in the case of a 20 percent solution in from one to one and a half hours.

After the maximum has been reached it begins gradually and slowly to diminish in quantity.

Cæteris paribus, the weaker or, in other words, the more voluminous the solution of the salt administered is, the more quickly is the maximum within the canal reached, and accordingly purgation follows with greater rapidity.

Unless the solution of the salt is more concentrated than 10 percent it excites little or no secretion in the stomach.

The salt is absorbed with extreme slowness by the stomach of the cat.

The salt excites an active secretion in the intestines, and probably for the most part in the small intestines, all portions of this viscus being capable of yielding the secretion in almost equal quantities.

The salt does not purge when injected into the blood and excites no intestinal peristalsis.

The magnesium sulphate is powerfully toxic when injected into the circulation, paralyzing first the respiration and afterward the heart and abolishing sensation or paralyzing the sensory-motor reflex centers.

According as the salt solution within the intestine increases in amount there occurs a corresponding diminution of the fluid in the blood.

The blood recoups itself in a short time by absorbing from the tissues a nearly equal quantity of their fluids.

The salt, after some hours, causes diuresis, and with it a second concentration of the blood which continues so long as diuresis is active.

Leubuscher¹² takes up the theory advanced by Liebig and Poyseuille that the action of the salt is purely due to endosmosis, that of Auer with reference to cathartic action when introduced parenterally and Hay's and Voit's, Bauer's, Moreau's, Lauder Brunton's etc., all with reference to influence of the salts on peristalsis. The results of his experiments seem to show that:

The increase in peristalsis plays only a minor part in the cathartic action of the salt.

No matter how the salts are introduced into the intestines there is always a secretion of fluid into the canal, and this is to be considered the main cause of the cathartic action.

There is no evidence that the salt inhibits resorption.

When introduced into circulation in sufficient amounts these salt have a constipating effect.

The investigations of Meltzer¹³ on the nature of the action of magnesium as a cathartic suggest that magnesium sulphate when introduced by way of the mouth combines with the sodium chloride found in the stomach and with the alkalies and carbon dioxide of the circulation, and splits up into sodium sulphate and magnesium carbonate. The sodium sulphate is absorbed into the circulation and causes intestinal peristalsis. The magnesium carbonate acts possibly within the intestines in two ways: It attracts liquid within the lumen of the intestines thus distending it and probably acts directly on the mucosa as a chemical stimulus. It is possible that magnesium sulphate, either as such, or in new formed combination, may have simultaneous actions of exciting and inhibitory nature on the functions of the animal body and thus bring about tonus, rhythm and peristalsis of the intestine with resultant evacuation.

NERVES AND ANAESTHESIA.

Meltzer and Auer¹⁴ have shown that solutions of magnesium salts, even in strong concentrations, when applied directly to the nerve trunks of animals, never seemed to produce irritation. By applications of solutions of magnesium salts to nerve trunks the conductivity can be interrupted and a more or less complete block for afferent and efferent, or normal or artificial impulses, can be established. This can be accomplished by hypertonic, isotonic and hypotonic solutions. The more concentrated the solution the sooner the effect is established.

In general it takes more time for the magnesium solutions to cause a nerve block than for other known local or general anaesthetics. The block produced in the nerves by magnesium solutions disappears sometime after removal of the solutions; the recovery of the nerve is greatly assisted by washing with Ringer's solution.

The solutions of magnesium salts affect the cardiac fibers more readily than the efferent fibers for the oesophagus and the afferent respiratory and vasoconstrictor fibers within the vagus; also the sensory fibers within the sciatic nerve are more readily affected than the motor nerve fibers. It is believed that the difference is not due to a selective action of the magnesium solutions upon the different nerve fibers but to a difference in the irritability of the nerve endings of these nerve fibers.

In 1899 Meltzer¹⁵ demonstrated, on a rabbit, that the effect of an intracerebral injection of potassium chlorate was that of producing a long series of convulsions, forced movements, opisthotonus, etc., and in another rabbit the opposite effect by intracerebral injection of magnesium sulphate. Without preceding convulsions the rabbit became paralyzed in a short time. No explanation of this phenomenon was made at that time. In subsequent experiments made by Meltzer and Auer¹⁶ it was determined that:

A certain dose of magnesium sulphate will produce a deep, often long-lasting anaesthesia with complete relaxation of all the voluntary muscles and aboli-

tion of some of the less important reflex activities, which anaesthesia terminates in complete recovery.

That a large dose of magnesium salts will produce a profound anaesthesia and general paralysis which sooner or later leads to a calm death without being preceded or accompanied by any symptoms of excitation and not a single instance was observed in which that salt produced an increase of excitation; on the contrary any effect which this salt produced was invariably in the direction of a reduction of excitation or of its complete temporary or permanent abolition.

Haubald and Meltzer¹⁷ were the first to report the production of spinal anaesthesia by magnesium sulphate.

Emil Stransky¹⁸ has established the fact that subcutaneous injections of magnesium sulphate which produce narcosis cause an increase of the magnesium salts in the blood plasma; in the other organs there is either no increase at all or but very slight increase in the magnesium contents.

The relation of calcium contents to magnesium contents in the serum, which normally is strongly on the calcium side, is considerably altered in favor of magnesium so that the magnesium contents exceed even after awakening. It appears that the condition of narcosis is determined by a definite maximal value of the Ca/Mg quotient.

TETANUS.

Meltzer and Auer¹⁹ show that: Intraspinal injections of magnesium sulphate, in doses which do not affect the respiratory center or other vital function, are capable of abolishing completely all clonic convulsions and tonic contractions in cases of human tetanus, and experimental tetanus in monkeys. The relating effects of the injections may last 24 hours or longer. In experimental tetanus in monkeys early intraspinal injections of magnesium sulphate are capable of retarding the progress and development of the tetanic symptoms.

The usual amount used in humans is 1 Cc. of a 25 percent solution for every 20 pounds of body weight.

A number of cases of successful treatment of tetanus by means of magnesium sulphate administered intraspinously are to be found in the medical literature²⁰⁻²³.

On the other hand there are a number of cases, similarly treated, with fatal termination²⁹⁻³²:

Rozenowsky³³ reports from observations made during the present war that whenever the antitoxin treatment was associated with magnesium sulphate injections, either intralumbar or subcutaneous, the most favorable results were obtained. Furthermore he asserts that no unfavorable results or dangers from the use of magnesium sulphate were observed by them.

Robertson³⁴ gives a summary of some results obtained by the different methods of administering magnesium sulphate in tetanus.

Intraspinal Method: (4-5 Cc. of 25 percent solution) 81 patients, severe cases, with incubation period of less than five days, 36 died, 45 recovered, mortality 44.4 percent.

Anders and Morgan: 216 cases.

| | | |
|------------------------------------|--------------------|------------------------------|
| 38 cases incubation period 5 | days or less, no | antitoxin—mortality 95% |
| 23 cases incubation period 5 | days or less, plus | antitoxin—mortality 74% |
| 58 cases incubation period 6-10 | days or less, no | antitoxin—mortality 79% |
| 56 cases incubation period 6-10 | days or less, plus | antitoxin—mortality 71% |
| 18 cases incubation period over 10 | days | no antitoxin—mortality 93% |
| 23 cases incubation period over 10 | days | plus antitoxin—mortality 35% |

Robertson concludes that the administration of magnesium sulphate by intralumbar injection has brought about a definitely certain, even if small, decrease in the percentage of deaths from tetanus, as well as causing an undoubted diminution in the agony and suffering etc., etc.

Subcutaneous Method: (0.57 Mg. per kilo). Twelve cases, incubation period 6-10 days, mortality 8.3 as compared with 48.6 percent for the same group treated by intralumbar method. In addition to this 15 cases with incubation period of 10 days and over all recovered, reducing the mortality rate quoted above to 3.7 percent.

Intravenous Method: (3 percent solution). No conclusive data. Dangers: Overdose rapidly injected into vein; instant death; heart stops before respiration; such accidents rarely happen with subcutaneous injections. The sudden untoward action of the magnesium salts can be overcome by injections of calcium chloride,³⁵ or by physostigmine.³⁶

We may conclude our remarks on magnesium sulphate and tetanus with a reference to Meltzer,³⁷ who points out that the fatal issue in tetanus is principally due to the spasms which profoundly affect the functions of respiration and circulation. He synthesizes briefly the four ways of magnesium sulphate medication in tetanus as follows:

1. *Subcutaneous injections*—Dose not to exceed 2 Cc. nor less than 1.22 of the 25 percent solution per Kg. body weight. To be injected four times in 24 hours. No massage. Light etherization or morphinization should precede the injection of magnesium sulphate.

Administered in this way magnesium sulphate exerts its effect very slowly and principally by cumulative action. Will not relieve immediately severe and dangerous spasms.

2. *Intramuscular injections and inhalation of ether.*—The patient should be fairly well etherized and 2 Cc. of a 25 percent solution magnesium sulphate per Kg. body weight be injected into the muscles of the thigh. At the end of the injection massage the thigh and continue light ether anaesthesia for about 20 minutes longer. This method may greatly relieve even severe spasms, in less than half an hour, but the beneficial effect is liable to pass off completely after two or three hours. There may be local reaction and for this reason the injections should not be repeated too often nor should this method be used as a routine treatment.

3. *Intravenous injections.*—The concentration of the solution should be about 3 percent (isotonic) and not more than 5 Cc. per minute should be permitted to run into the vein. This mode of administration is capable of relieving dangerous effects of the spasms (tetanus of the diaphragm, constriction of the larynx) more promptly than any other method of application. But the beneficial effect may completely disappear in less than 30 minutes and furthermore the circulation may become affected by direct action on the myocardium. This method should therefore be reserved for emergency cases only.

4. *Intraspinal Injection.*—The dose to be injected, at the usual place in the lumbar region, should be 1 Cc. of a 25 percent solution for every 10 Kg. of body weight. The results of this method of treatment may become evident in less than half an hour, and after one hour the relaxation may be complete. The extent as well as the duration of the relief afforded to the patient is greater when the magnesium solution is given by the intraspinal method than by any other method of administration. The relief may last between 12 and 30 hours.

SEPSIS.

Harrar³⁸ used a solution of 30 grains magnesium sulphate in 8 ounces of water, and sometimes a similar quantity of a 2 percent solution for intravenous injections in a number of cases of puerperal sepsis. In all of his cases blood culture and uterine culture were made, many proving positive, showing streptococci. The remarkable results obtained lead the author to the conclusions that:— In the quantities and

dilutions described it is absolutely harmless when administered intravenously to women suffering with puerperal infection. That it is of more value early in the course of infection and seems to be of no value in chronic cases of secondary thrombophlebitis or pyemia. That the action of the drug seems to be chiefly on the organisms circulating in the blood. That it shortens the course of bacterial toxemias; and that it has reduced the mortality in puerperal septicemia in their hospital, from 93 to 20 percent.

According to Huggins,³⁹ a number of cases suffering from puerperal infection were treated by *slow* intravenous injections of magnesium sulphate with remarkably favorable results.

Freese⁴⁰ reports the use of magnesium sulphate and glycerin in the treatment of infections. A number of cases of infections (external) yielded very promptly to "hot solution of glycerin and salt" but he does not state the proportions used.

ACTION OF MAGNESIUM SULPHATE ON HEART, ETC.

Mathews and Jackson⁴¹ hold that the action of magnesium sulphate upon the heart is practically the same throughout the mammalian, avian, reptilian and amphibian classes. This action consists of a very marked depression, characterized by an immediate decrease in the amplitude of the heart beat and of simultaneous progressive slowing which soon leads to a complete standstill, from which the heart may be recovered by artificial stimulation. Adrenalin and squill can not be used to offset this depression.

MacNider and Mathews,⁴² after a discussion of the various theories as to origin and maintenance of the heart beat, and based on their observation of the behavior of the heart in response to certain physical and chemical stimuli while under the influence of magnesium sulphate, conclude that magnesium sulphate depresses the nervous mechanism in the heart, both accelerator and inhibitory—the latter more than the former to such an extent that it will not transmit to the contractile tissue impulses of the same degree as are set in by the usual physiological stimulus, whatever that may be, but that it will transmit the stronger electrical stimulus or the normal motor impulse after the heart muscle has been rendered more irritable.

RESPIRATION.

Meltzer and Auer⁴³ proved that magnesium salts in intravenous injections are very toxic, even in small doses, and that repetition of the injections within a relatively short time increases the susceptibility of the animal to the toxic effect. The first effect is on the respiration, which becomes completely inhibited. The respiratory center is deprived of its responsiveness to asphyxiated blood, and the reflex effect of sensory stimuli is greatly reduced. Large doses of salt, injected with rapid speed, affect also the tonus of the vasomotor center, but this toxic effect is not, as a rule, extreme and wears off sooner than the effect on the respiratory center.

SALIVARY DIGESTION.

Patten and Stiles⁴⁴ have shown that even concentrated solutions of magnesium sulphate do not inhibit the action of ptyalin on carbohydrates. The most striking instances of accelerating effects (upon the action of ptyalin) were obtained with salts of magnesium, calcium and barium.

ANTAGONISTIC ACTION OF CALCIUM AND MAGNESIUM SULPHATE.

Meltzer and Auer⁴⁵ show that apparently the respiratory mechanism, which becomes affected by magnesium more readily than any other function, is also more easily protected against this influence by calcium. Intravenous infusion of various calcium salts is capable of completely reversing the pronounced inhibitory effects brought on by various magnesium salts. The respiratory paralysis, the lost lid reflex, the motor paralysis, the lost general reflexes, the general anaesthesia, the loss of consciousness, the depression of the cardio-inhibitory action of the vagus, the lowering of the blood pressure—all are reversed and completely restored in a very short time by the injection of a comparatively small quantity of calcium salt. This does not hold good, however, for conditions brought about by large doses of magnesium.

On the other hand strontium differs in its action from that of calcium with respect to the neutralization of the inhibitory effect of magnesium. While it (strontium) does cause a very slight improvement of the respiration it seems to aggravate and hasten the inhibitory symptoms due to magnesium, especially the paralysis.

Joseph⁴⁶ has demonstrated that eserine tremor can be abolished by magnesium sulphate and that magnesium has a certain value as antidote for eserine poisoning but not on eserine myosis.

Joseph and Meltzer⁴⁷ also gave a demonstration on rabbits before the American Physiological Society: One rabbit received an intramuscular injection of 1.2 Cc. magnesium sulphate per kilo body weight with fatal results. Another rabbit received a similar dose of magnesium sulphate with a simultaneous injection of barium chloride and this rabbit appeared to be in good, normal condition, while still another rabbit, receiving a dose of barium chloride similar to that given to rabbit No. 2, promptly succumbed. The authors draw these conclusions from their work: The fatal action of magnesium is due to paralysis of respiration and barium counteracts just this effect of magnesium. It differs from the antagonistic action of calcium inasmuch as calcium antagonizes all the effects of magnesium while barium picks out only the respiration, the animal remaining anaesthetized, and paralyzed. Furthermore the experiment also proves that magnesium antagonizes the fatal effect of barium.

PATHS OF EXCRETION.

Mendel and Benedict⁴⁸ show that when soluble magnesium compounds are introduced parenterally into animals the greater portion of the excess injected leaves the body by way of the kidneys in less than 48 hours, thus emphasizing the importance of the kidney in the elimination of magnesium salts. The intestinal path is of minor, if any, significance for magnesium introduced under these conditions. A considerable quantity of magnesium may be retained in the body for a period of two weeks. The parenteral introduction of magnesium sulphate in dogs and rabbits is never followed by purgation.

The increased excretion of magnesium by the kidneys is accompanied by a marked rise in the urinary output of calcium while the calcium output in the faeces is decreased at the same time.

Inasmuch as magnesium sulphate was much in use for various purposes, among these the administration, subcutaneously, to relieve tetany in children, Courtney

and Fales⁴⁹ undertook a series of experiments to ascertain the rate of elimination in order to avoid a possible toxic accumulation of the salt in the body. They come to the conclusion that magnesium is eliminated rapidly enough, chiefly by way of the urine, to nullify a possible danger of cumulative effect of magnesium.

Meltzer and Lucas⁵⁰ show that magnesium salts when introduced subcutaneously are eliminated to a great extent through the kidneys. In nephrectomized rabbits the susceptibility to the toxic effect of magnesium salts is increased by about 50 percent.

The profound anaesthesia which a toxic dose of magnesium produces in nephrectomized rabbits may be continuous for 24 hours or longer. The cumulative effect of magnesium salts in nephrectomized rabbits is very striking. The effect of several subminimum doses is equal to the effect produced by the sum of these doses given in a single injection.

A dose which when given soon after nephrectomy is fatal, causes only a non-fatal anaesthesia when given 18 hours or later after nephrectomy. Probably at that period vicarious paths develop sufficient for the elimination of a fraction of the salts. It is probably for this reason that the profound anaesthesia produced by a proper dose of magnesium salts is partially recovered from in about 12 to 18 hours after nephrectomy.

BLOOD PRESSURE AND EDEMA.

Very little, if any, attention has been paid to the influence of magnesium sulphate on blood pressure.

I wish to report briefly on a few cases which have come under my personal observation.

Case 1—Woman 68 years of age. Paroxysmal tachycardia. B. P. 185 mm. Hg. Systolic; 110 diastolic. A daily dose of 4 Gm. magnesium sulphate in 25 percent dilution (16 Cc. oral administration) resulted in a reduction of the systolic pressure to 154, diastolic 104, with marked prolongation of tachycardial intervals.

Case 2—Man 70 years of age, marked dyspnoea, irregular arrhythmia, cardio-nephritic. Systolic 180, diastolic 100. After six months' treatment there has been a gradual drop in the systolic pressure to a final 146 with unchanged diastolic and marked improvement in breathing. It has remained in *status quo* for the past four months with only an occasional dose of magnesium sulphate.

Case 3—Woman 72 years of age. Edema of extremities, nephritic and diabetic. Mitral and aortic lesions. Systolic 240, diastolic 160. Has been under treatment for two and a half years. Daily dose of 4 Gm. magnesium sulphate. At present 165-110. Urine shows only an occasional trace of albumin. Glycosuria is intermittent, no edema.

Several other cases have shown similar results but those quoted are the most striking in the series. The action of the magnesium sulphate in these cases is two-fold: First, by its purgative action it prevents intestinal stasis and reduces the resulting auto-intoxication to a minimum; second, by adsorption of water from the blood and tissues it reduces the circulating volume and decreases the blood pressure and edema. It must be borne in mind that the magnesium sulphate should be administered in concentrated form and no water must be allowed within three hours after administration of the drug.

PALATABLE MIXTURES.

In conclusion I wish to mention a few ways in which magnesium sulphate may be administered in a palatable way. For the sake of simplicity I have presented these in the form of prescriptions:—

1. Magnesium Sulphate. 30.00 Gm
Aromatic Sulphuric Acid 8.00 mls
Water. 60.00 mls
Glycerin to make 120.00 mls
Dose: One tablespoonful.
2. Magnesium Sulphate. 30.00 Gm.
Fresh Orange Juice 30.00 mls
Water. 60.00 mls
Glycerin to make. 120.00 mls
Dose: One teaspoonful.
3. Magnesium Sulphate 30.00 Gm
Tincture Cardamom Comp. 10.00 mls
Citric Acid. 1.00 Gm
Water. 60.00 mls
Glycerin to make 120.00 mls
Dose: One teaspoonful.
4. Magnesium Sulphate 30.00 Gm
Citric Acid. 1.00 Gm
Syrup Sarsaparilla Comp 60.00 mls
Water to make 120.00 mls
Dose: One teaspoonful

Carlton⁵¹ suggests the following mode of prescribing magnesium sulphate:

| | |
|-----------------------------|-------------|
| Magnesium Sulphate | 1000.00 Gm. |
| Fluidextract Cardamom Comp. | 30.00 mls |
| Vanillin. | 1.50 Gm. |
| Garantose. | 16.00 Gm. |
| Alcohol | 16.00 mls |
| Glycerin | 60.00 mls |
| Coffee (roasted and ground) | 60.00 Gm. |
| Water to make | 2000.00 mls |

DIRECTIONS: Stir the ground coffee in 2000 mls of boiling water, let stand 10 to 20 minutes. While hot add the magnesium sulphate and stir until dissolved. Dissolve the vanillin in the alcohol, add the glycerin and fluidextract and mix with the magnesium sulphate solution; when cold add the garantose, filter and bring up to the volume by addition of water. Thirty mls contain 15 grammes of magnesium sulphate

SUMMARY

- 1.—Magnesium sulphate is one of the promptest acting saline laxatives of our present materia medica.
- 2.—The degree of dilution modifies the rapidity of action.
- 3.—The mode of its cathartic action is presumably due to a combination of absorption of fluid from the blood, stimulation of secretion by the intestinal mucosa and increasing tonus and stimulating peristalsis of the intestinal musculature.
- 4.—Subcutaneous and intravenous injections do not produce catharsis.
- 5.—It produces local and general anaesthesia, but is not free from danger by reason of its marked depression of the respiratory center.
- 6.—Its toxicity is in inverse proportion to the ability of the animal to eliminate it from the system.
- 7.—Elimination takes place chiefly by kidney.
- 8.—The toxic effects are antagonized by calcium, barium and strontium salts but each to a different extent.
- 9.—It has proven of value in septic conditions, both local and general.
- 10.—In the treatment of tetanus, particularly in association with antitoxin, it has robbed war of some of its terrors.
- 11.—In concentrated solution it reduces blood pressure and edema.
- 12.—A few methods for dispensing palatable magnesium sulphate for oral administration are suggested.

BIBLIOGRAPHY.

1. Hay; *Journal Anat. & Physiol.*, XVI, 1881.
2. Dutrochet; *Recherches sur L' endosmose et l'exosmose*, Paris, 1828
3. Poisseuille; *Recherches experimentales sur les Mouvements des liquides dans les tubes de petites diametres*, Paris, 1882.
4. Liebig; *Untersuchungen Ueber die Mineralquellen Zu Soden, etc.*, Wiesbaden, 1839.
5. Aubert; *Zeitschr. fuer rationelle Medizin* Bd I., 1851.
6. Colin, *Physiologie Compare'e*, 1854, t. c
7. Moreau; *Archive general de Medicine*, VI, Sene t., XVI, 1870.
8. McCallum; *Am. Journ. Physiol.*, 1903, X, 101
9. Meltzer and Auer; *Am. Journ. Physiol.*, 1906 '7, XVI, 315.
10. Auer; *Am. Journ. Physiol.*, 1906 '7, XVII, 25.
11. Hay; *Journ. Anat. & Physiol.*, 1883, XVII, 438.
12. Leubuscher; *Virchow's Archiv.*, 1886, CIV, 434

13. Meltzer; *Archives Intern. Med.*, June 1915, p. 955.
 14. Meltzer and Auer; *Am. Journ. Physiol.*, 1906, XVI, 233, etc.
 15. Meltzer; *Am. Journ. Physiol.*, 1900, III, 9.
 16. Meltzer and Auer; *Am. Journ. Physiol.*, 1905, XIV, 367, etc.
 17. Haubold and Meltzer; *J. A. M. A.*, March 3, 1906, 647.
 18. Stransky; *Arch. f. Exper. Pathologie und Pharmacol.*, 1914, LXXVIII, 122.
 19. Meltzer and Auer; *Journ. Exp. Med.*, 1906, VIII, 692.
 20. Greely; *J. A. M. A.*, 1907, Vol. I., p. 345.
 21. Robinson; *J. A. M. A.*, 1907, Vol. II, p. 493.
 22. Franke; *Centralblatt fuer Innere Med.*, 1907, p. 345.
 23. Powers; *Med. Record*, 1908, p. 146.
 24. Miller; *J. A. M. A.*, Vol. I, 1908, p. 781.
 25. Lyon; *J. A. M. A.*, Vol. I, 1908, p. 1688.
 26. Griffon; *Bull. de la Soc. Med. des Hop. de Paris*, 1908, p. 190.
 27. Heineck; *Annals of Surg.*, 1906, p. 76.
 28. Goepf; *N. Y. Med. Journ.*, 1909, p. 1192.
 29. Blake; *Annals of Surg.*, 1906, p. 541.
 30. Logan; *J. A. M. A.*, Vol. I, 1906, p. 1502.
 31. Peck; *J. Exp. Med.*, 1906, p. 692.
 32. Henry; *Intern. Clinic*, 1907, p. 1.
 33. Rozenowsky; *Therap. O. Gegeunart, Berl.*, Nov. 1914, p. 435.
 34. Robertson; *Arch Int Med.*, May 1916, p. 617.
 35. Loeb; *Journ. Biol. Chem.*, 1905, 6, 1, 427.
 36. Joseph and Meltzer; *Journ. Pharmacol. & Exp. Therap.*, 1909, I, 369.
 37. Meltzer; *Lancet-London*, June 26, 1915, 1330.
 38. Harrar; *Am. J. of Obstetr.*, 1913, LXVIII, 825.
 39. Huggins; *Am. J. of Obstetr.*, 1911, LXIII, 265.
 40. *N. Y. Med. Journ.*, 1914, Vol. 99, p. 331.
 41. Mathews and Jackson; *Am. Journ. Physiol.*, 1917, XIX, 5.
 42. MacNider and Mathews; *Am. Journ. Physiol.*, 1907, 8, XX, 323.
 43. Meltzer and Auer; *Am. J. Physiol.*, 1905 '6, XV, 387.
 44. Patten and Stiles; *Am. J. Physiol.*, 1906 '7, XVII, 26.
 45. Meltzer and Auer; *Am. J. Physiol.*, 1908, XXI, 400.
 46. Joseph; *Am. J. Physiol.*, 1908 '9, XXIII, 215.
 47. Joseph and Meltzer; *Am. J. Physiol.*, 1909 '10, XXV, p. xvii.
 48. Mendel and Benedict; *Am. J. Physiol.*, 1909 '10, XXV, 1.
 49. Courtney and Falls; *Am. J. Dis. of Children*, 1915, IX, 318.
 50. Meltzer and Lucas; *J. Exp. Med.*, 1907, IX, 298.
 51. Carlton; *Medical News*, Oct. 1904.
- Also:—
- Gibson; "Comparative Value of the Methods of Treating Tetanus," *Am. J. Med. Sciences*, 1916, CLII, 781.
- Meltzer; "Die hemmenden und anaesthesierenden Eigenschaften der Magnesium Salze," *Berl. Kl. Woch.*, 1906.
- Meltzer; "The Influence of Diuresis upon the Toxic Dose of Magnesium Salts," *Proc. Soc. f. Exp. Biol. & Med.*, 1907.

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SOY BEANS AND SOY BEAN OIL.*

BY E. V. HOWELL.

This bean is a native of southeastern Asia. It is at present the most important legume grown in Japan, China and Manchuria, where it is grown almost exclusively for human food. It has been cultivated from a remote period, each district having its own distinctive variety, some two hundred kinds in all. It was brought to Europe in comparatively recent times and there cultivated in botanic gardens for more than a hundred years without attracting any particular attention. The bean was introduced into England in 1790. Apparently the first mention of soy beans in American literature, was in the *New England Farmer*, October 23, 1829, in an article by Thomas Nuttall. He grew a variety with red flowers and chocolate-

* Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

brown seed in the botanic garden at Cambridge, Mass. From his observations he wrote a brief account of it: "Its principal recommendation at present is only a luxury, affording the well-known brown sauce 'Soy,' which at this time is prepared only in China and Japan." Just two years later, November 23, 1831, an article appeared in the same journal regarding the culture of the plant at Milton, Mass., the seed having been obtained from Nuttall. Further mention of the plant appeared in a brief account under the name "Japan Pea," by A. Ernst, Cincinnati, Ohio.

In 1854, the Perry Expedition to Japan brought back two varieties of "soja beans," one with white seeds, the other with red seeds. They were distributed by the Commissioner of Patents in 1854, and from then on frequent references to the plant occur in agricultural literature under the names Japan pea, Japan bean, and Japanese fodder plant. The name soy or soja bean followed. Prof. Henry Trimble, in June 1896 and in November 1897, in the *American Journal of Pharmacy* published excellent papers on the soy bean.

It is not adapted to sections with a short growing season; however, from the large number of varieties to choose from, there is little difficulty in growing it over an extensive section of the United States, particularly in the South. Scarcely more than a dozen varieties have as yet been grown in large quantities.

IMPORTANCE.

I think the soy bean is the most important plant introduced into the South within a hundred years. This opinion is based on the range of the plant, the value as a soil improver, and the numerous uses of the seed and oil, together with the fact that the present cottonseed oil mills can produce the oil with practically no change in machinery and thus double their mill season. The beans can be stored, as they are practically immune to insects. Especial emphasis is placed on this statement in the present demand for food on account of the war. In Japan the bean forms one of the most important articles of food, by nature a meat, to go with the starch of rice. The Chinese make from the beans a cheese resembling our own cheese, while the Japanese make the well-known sauce for rice or fish, soy or suey sauce. It is one of the principal ingredients in "Tofu" (bean curd), natto (steamed beans), and white and brown miso, which is like our molasses brown bread.

The beans are eaten as a vegetable, or in soup, or picked green, boiled and served cold with soy sauce, and sometimes as a salad. A "vegetable milk" is also produced from the bean, and this milk is the basis for the manufacture of the different vegetable cheeses. This milk is used fresh, and also a condensed milk is made from it. All of these foods are in daily use in Japanese homes, and for the poorer classes form the principal protein diet.

A factory for the production of this milk has been recently established in America. This can be used in cooking, by bakers, confectioners, and chocolate manufacturers. I have before me the following food articles in which soy bean meal is the principal ingredient: Egg substitute No. 1, egg substitute No. 2, colored cocoanuts, coffee substitute, cocoa substitute, roasted malted nuts, coloring curry powder, cutlet powder, soy and navy beans with pork, the equal of any pork and beans.

The use of the soy meal for soups, for proportional use in muffins, cookies, fritters, croquettes, biscuit, and loaf bread is unlimited. Its use is checked only

by our prejudice for certain customary flavors, just as northern people and Europeans do not use corn meal. In other words, North Carolina, if forced to by war conditions, could largely exist on the soy beans crushed in the State this year, including the imported and native beans crushed, the oil from which I estimate to yield this year 400,000 gallons. This oil can be used for frying, and for a salad oil in French dressing or in mayonnaise. I fried a partridge in the crude unrefined oil, and found it delicious.

While the chief use, so far, of the oil has been for soaps and paints, the particular object of this paper has been to call attention to the use of soy oil in pharmaceutical preparations. In brief, these experiments show first the necessity of a distinctive test for soy oil. It does not respond to the Halphen test for cottonseed oil, nor the hydrochloric acid-sugar test for sesame oil. It was substituted for cottonseed oil in Camphor Liniment, for linseed oil in Compound Solution of Cresol, for olive oil in Compound Brown Plaster, N. F., and Brown Ointment, N. F., for sesame oil in Ammonia Liniment, with satisfactory results. In Phenolated Oil, N. F., the soy oil used for olive oil became darker after standing several weeks. A Manchurian oil purchased in New York gave these results:¹

| | Specific gravity. | Saponification value. | Iodine value. |
|-------------------|-------------------|-----------------------|---------------|
| Sample No. 1..... | 0.9240 | 194.4 | 131.1 |
| Sample No. 2..... | 0.9244 | 194.9 | 130.9 |
| Sample No. 3..... | 0.9241 | 194.6 | 131.3 |

An ordinary pycnometer was used at 20° Centigrade. The iodine number represents the percentage of iodine monobromide, in terms of iodine, absorbed by the oil. From a sample of mammoth yellow beans we found ash 3.6 percent, oil 21 percent by ether solvent and Soxhlet extraction. No evidence of alkaloids was discovered.

CONSTITUENTS OF SOY BEANS.

The Government and certain state agricultural departments have so extensively treated this subject, in the bibliography cited in this paper, that merely typical analyses will be given.

SOY BEAN MEAL.

| | Moisture. | Protein. | Fat. | Nitrogen-Free Extract. | Ash. | Fiber. |
|---------------------------|-----------|----------|------|------------------------|------|--------|
| Soy bean..... | 7.59 | 44.65 | 8.77 | 27.12 | 5.89 | 5.96 |
| Cottonseed..... | 6.62 | 40.29 | 7.41 | 28.63 | 6.21 | 10.84 |
| Linseed, old process..... | 8.98 | 33.23 | 7.20 | 36.51 | 5.40 | 8.68 |
| Linseed, new process..... | 9.63 | 37.51 | 2.49 | 36.09 | 5.54 | 8.74 |
| Peanut, decorticated..... | 10.73 | 46.84 | 7.91 | 24.34 | 4.89 | 5.29 |
| Sunflower seed..... | 7.68 | 23.80 | 7.94 | 27.49 | 5.03 | 28.06 |

The average oil content of soy beans is 19 percent. While some varieties will uniformly run a little higher, two lots of the same variety will vary from 18 to 21 percent, while occasionally a lot may run a little below 18 percent.

During the past six or seven months there has been produced in this country in the neighborhood of one hundred thousand gallons of soy oil. The largest part of this quantity has been produced in North Carolina by the Elizabeth City

¹ "Investigation of Soy Bean Oil," George W. Byrd, Chapel Hill, N. C.

Oil & Fertilizer Co., Winterville Cotton Oil Co., and the New Bern Cotton Oil & Fertilizer Mills. Samples from the different crushings have been examined in comparison with the imported oils. It was found that the chemical constants of the domestic oils compared very closely with those of the imported oils. A comparison of the chemical constants is here shown from a report of L. P. Nemizek, to Bureau of Paint Manufacturers:

| Identification No. | Specific gravity. | Iodine number. | Acid number. | Saponification value. |
|---------------------------------|-------------------|----------------|--------------|-----------------------|
| FI, No. 9355 (Domestic)..... | 0.929 | 124.3 | 0.8 | 194 |
| Lab. No. 383 (Domestic)..... | 0.921 | 129 | 0.6 | 193.8 |
| Lab. No. 411 (Domestic)..... | 0.924 | 126 | 1.3 | 201 |
| Lab. No. 409 (Domestic)..... | 0.925 | 123.5 | 2.0 | 196.1 |
| Lab. No. 335 (Domestic)..... | 0.924 | 126.3 | 1.2 | 190.4 |
| Imported Oil, FI, No. 8940..... | 0.925 | 123.8 | 1.9 | 190 |
| Imported Oil, FI, No. 9029..... | 0.925 | 133.8 | 3.1 | 190 |

THE UNITED STATES GOVERNMENT'S ESTIMATE OF THE VALUE OF THE SOY BEAN AS A FOOD FOR MANKIND.

In *Farmers Bulletin* No. 121, issued Nov. 19, 1906, prepared under the supervision of the Office of Experiment Stations, on pages 12 and 13, an account of soy beans is given, and the statement made that "In the Orient this bean, and the various food products made from it, are so largely consumed that it is, perhaps, the most important food plant next to rice."

On page 19 of this *Bulletin* we find a comparison of the food values of various food materials, in which we find these analyses:

| Material. | Water Percent. | Protein. Percent. | Fat Percent. | Ash Percent. | Carbo-hydrates. Percent. | Fuel value per pound calories |
|------------------|----------------|-------------------|--------------|--------------|--------------------------|-------------------------------|
| Navy beans..... | 12.6 | 22.5 | 1.8 | 3.5 | 59.6 | 1,605 |
| Soy beans..... | 10.8 | 34.0 | 16.8 | 4.7 | 33.7 | 1,970 |
| Potatoes..... | 78.3 | 2.2 | 0.1 | 1.0 | 18.4 | 385 |
| Wheat flour..... | 11.9 | 10.7 | 1.0 | 0.6 | 75.8 | 1,650 |
| Lean beef..... | 70.0 | 21.3 | 7.9 | 1.1 | .. | 730 |
| Milk..... | 87.0 | 3.3 | 4.4 | 0.7 | 5.0 | 325 |
| Eggs..... | 73.7 | 14.8 | 10.5 | 1.0 | .. | 720 |

MEDICINAL USE.

In England a diabetic biscuit is manufactured. In this country an infant's food from the soy bean is on the market. The enzyme in the bean is also attracting attention and opening a field for investigation. In conclusion, I want to call attention to the necessity of examining the imported seed for plant diseases as the cake is entering into commercial fertilizers and the danger from spreading the meal over land is obvious to those who know the cost of the imported boll-weevil, or the San José scale.

BIBLIOGRAPHY.

N. C. Experiment Station, Circular No. 31, p. 1; Circular No. 24
U. S. Department of Agriculture, *Farmers Bulletin* No. 372, Bull. 439
U. S. Department of Agriculture, Bureau of Plant Industry, Bulletin No. 197, p. 26
U. S. Department of Agriculture (Office of Information Circular Letters) The Soy Bean, No. I-II.
Thomas Weekly Review, October 1916.
Chemist and Druggist, May 29, 1909, p. 830.

Delaware College Agriculture Experiment Station Bulletin No. 99, December 1, 1912, p. 1, p. 10.

Caspari's *Treatise on Pharmacy*, Fifth Edition, p. 220.

N. C. *Department of Agriculture Extension Circular* No. 29, p. 6, *Bulletin* No. 9.

Educational Bureau Paint Manufacturers' Association Circulars 37, 48, 50, 53.

Agricultural Experiment Station, University of Wisconsin, Bulletin 236.

Purdue University Agricultural Experiment Station, Bulletin 172.

American Journal of Pharmacy, November 1897.

L. P. Nemzek, *Educational Bureau Paint Manufacturers' Association, Circular* 37.

AMERICAN SULPHUR.—HERMAN FRASCH.*

BY M. A. MANSBACH.

To start with, I am neither a scientist nor a chemist, and the excuse which I have for appearing before you consists mainly of the facts, first, that at the present time there is an extraordinary famine in sulphur; second, the revolution brought about in the winning of sulphur by that wonderful chemical and mechanical genius, Herman Frasch, is yet far too little known; and third, the Government states in the *United States Geological Survey Bulletin* No. 666B, that, as a preparedness measure, the sulphur deposits that are now idle should be thoroughly developed, search should be made for new deposits in areas where the geological conditions are similar to those in the vicinity of known deposits, and that other deposits of sulphite ores should be intensely developed.

Sulphuric acid, a government specialist has said, is probably used for a greater variety of purposes in the chemical arts than any other substance. It is made largely from sulphur. This acid and sulphur itself are employed in the manufacture of fertilizers, nitroglycerin, celluloid, powder, matches, fireworks, soap, paper, glass, starch, sugar, molasses, copper, galvanized iron, tin plate, artificial ice, effervescent drinks, shoe blacking, iron, steel, coke and medicine, for vulcanizing rubber, for bleaching wool and silk, for printing calico and tanning and for refining gold, silver and petroleum. It is surprising that no mention at all is made of the use of sulphur as a base for dyestuffs.

Previous to 1895 the method of producing sulphur consisted of digging for it in the same orthodox manner in which we are now digging for coal. This old method was found to be impracticable in this country owing to the great depth of the sulphur deposit, underlying a strata of oil-bearing quicksand. Losses of plants and hundreds of lives occurred until the Government intervened. Sicily at that time had quite a domineering position in the sulphur market. Sulphur is found in and near craters of volcanoes in Japan and Sicily. In Sicily, 35,000 men are employed in the winning of sulphur and this industry is of the greatest local importance. In 1833 sulphur was almost the cause of a war between England and Italy when an English fleet demonstrated in the Bay of Naples to compel Italy to rescind the sulphur monopoly granted to France. Sulphur is also found in Spain and Scandinavia, but not in sufficient quantities to compete with the Sicilian sulphur.

*An address before Scientific Section, A. Ph. A., Indianapolis meeting, 1917. The author was delayed and therefore it was impossible to illustrate the lecture; however pictures of the interior of the plant, sulphur deposits and pumps were shown; also samples of sulphur from the Louisiana, Texas and Nevada deposits.

In 1894-5, when another sulphur crisis threatened to break out in Sicily, the Anglo-Sicilian Company was formed. They controlled between 60 and 80 percent of the entire production and were thus able to pay a yearly dividend of 50 percent and to build up large resources for contingencies. This contingency arose very suddenly when it dawned upon the managers of the Anglo-Sicilian Company that it had to reckon with a new factor in the history of the sulphur production. That factor was Herman Frasch.

Now I might be pardoned to say a few words about this wonderful genius, who lived and was brought up in the same town as myself, who visited the same Latin school and gymnasium in the town of Halle. Soon after Herman Frasch came to America and entered the laboratory of Prof. Maisch at the Philadelphia College of Pharmacy. Industrial chemistry in the modern sense was at that time practically unknown and it was left to Herman Frasch's genius to work out the solution of many problems.

In 1874 he opened a laboratory on his own account and obtained his first patent in the same year on the method of using tin scrap profitably. When he was twenty-four years old, in the year 1876, he discovered the method of purifying paraffin wax. The patent was acquired by Mr. Rockefeller, and the candle and wax paper departments of the Standard Oil Company were the results. One of the most important inventions patented by Herman Frasch was one for the separation and treatment of oil. At that time Canadian oil was selling at \$0.14 per barrel. It contained almost 1 percent of sulphur and had such an offensive odor that when a tanker laden with Canadian oil was lying in the port of New York, the food and butter stored in two adjacent steamers were entirely saturated with the same odor. Big lawsuits followed, and the production of oil in Canada had to be stopped.

Herman Frasch, in 1878, formed the Empire Oil Company, and at London, Ontario, solved the problem by a most wonderful chemical contrivance, introducing copper oxide that entirely absorbed the sulphur contained in the oil and made it as sweet and pure as the best Pennsylvania oil that sold at the time for \$2.25 per barrel. Twenty additional patents were taken out in the years 1887 to 1894. In the meantime the Standard Oil Company had established large oil refineries in Ohio, going to very great expense. They treated the oil in the old orthodox way and the same was returned to them as utterly useless for lighting purposes. They had almost concluded a very large contract to build a pipe line to Chicago to sell oil for fuel purposes when Mr. Rockefeller heard of Frasch's desulphurizing process, which he bought after a thorough investigation. The Standard Oil Company bought the Empire Oil Company and Herman Frasch received shares of stock at 168, which was paying at the time 7 percent. When he had introduced his methods, he sold one-half of his holdings in the Standard Oil Company at 820. Ohio crude oil rose from \$0.14 per barrel to \$1.00 and above. The Standard Oil Company had made millions through this process and was able to raise the dividends from 7 to 40 percent and all the oil producers in Ohio, Illinois and Indiana were greatly benefited.

Among the many other very useful patents that Herman Frasch applied for, I will mention only one. In 1899, a patent was granted to him for an important process to bring to the surface by solution the rock salt reached by boring.

I mention this particularly because that same process has been used in my native town, Halle, Saxony, for hundreds and hundreds of years, and, in view of developments that took place one year later, I might be permitted to ask the question whether or not Frasch's early associations in the old "Salt City" of Halle were not responsible for the millions of dollars he was to make later? October 23, 1890, was the day which was to cause a revolution in the production of sulphur. Sulphur was discovered in Louisiana as long ago as 1865. Men boring for oil in Calcasieu Parish, La., found sulphur under a bed of quicksand several hundred feet thick. Repeated attempts were made to mine the sulphur, but without success. Engineers from France and Austria tried and failed. Herman Frasch heard of the deposit in 1891. He had already melted rock salt with water and had pumped it out of the ground into evaporating tanks. The same process, he thought, might be used in the Louisiana sulphur beds.

Having found and surveyed his golden treasure, Frasch began work on the problem of getting the sulphur out. A bed of quicksand 500 feet in thickness prevented the digging of a shaft. Besides, that method had been tried by others and all the casing had been lost. Moreover, Frasch was busy elsewhere. So several years passed, and then one day Frasch went to work in earnest. A well was driven, after nine months of labor, to the bottom of the deposit of sulphur. The well itself was a 10-inch pipe with perforations at the bottom. Inside that well were three pipes varying in size from one to six inches. In the meantime a battery of boilers had been located on the ground and special machinery invented by Frasch was attached to the boilers for the purpose of superheating great quantities of water.

Orders to fire the boilers were given one morning. When the water was heated to 335° F., Frasch turned it into the well. It ran out of the holes at the bottom of the 10-inch pipe, melting the sulphur, and twenty-four hours later, hot water still pouring in, the pump was started. The pump worked easily at first, but in a few minutes it "took hold" and presently a yellow stream came rushing out of the pipe. All the barrels were filled and then the sulphur was turned into a reservoir that had been hastily dug in the earth near by. The reservoir, too, was soon filled and the sulphur, hot but almost dry, was heaped up until it made a yellow hill. The day drawing to a close, Herman Frasch stopped the machinery and, climbing to the top of the hill, sat down in the sulphur and let it stream through the fingers of his open hand.

He bought the property and organized the company in 1894. It was not until 1903, however, that he obtained sulphur in paying quantities. He brought in 35,000 tons that year. In 1904, he had enough to supply the American market and to ship a cargo of 3,000 tons to France. In 1903, the imports of sulphur into the U. S. were 188,888 tons, the exports none. In 1907, the imports were 20,399 tons, the exports 35,000 tons. The production of sulphur in the U. S. during the year 1880 amounted to 536 tons and the price was \$39.00 a ton. In 1904, the first big year of the Louisiana mine, the production was 128,000 tons; in 1911, 768,000 tons; in 1917, estimated requirements, 1,500,000 tons (600,000 tons short of production).

Government figures give the production of 1914 as having been 328,000 tons and practically all of it came from the southern swamp that Herman Frasch pur-

chased in 1894. At the beginning of his enterprise Frasch had introduced John D. Rockefeller's brother into his company, but, during the long years of hard and unsuccessful work and the beginning of the mine, Rockefeller lost heart and sold his interest out, thereby throwing away a yearly income of between \$250,000 and \$500,000. The real extent of Herman Frasch's wealth did not become known until after his death in Paris. His friends had always thought him a fairly wealthy man, but were amazed at the sensational figures of his millions which were disclosed afterward.

THE HISTOLOGY OF CASTELA NICHOLSONI.

BY C. J. ZUFALL.

Castela Nicholsoni is known in America as *Chaparra Amargosa* (Mexican for "bitter bush") and on the Island of Antigua as "Goatbush." This drug, although not widely known, is of considerable importance in the Southwest where it is employed in the treatment of amebic dysentery. One physician¹ states, "it is the most efficient remedy we have at the present for the treatment of this disease, unless we except emetine."

In 1883 J. L. Putegnat² made a brief study of the drug but did not describe the plant fully or give its histology. He determined the percent of extractives with various solvents and briefly studied the bitter amorphous principle, to which his father, J. L. Putegnat, had given the name "amargosin."

Hooker³ first described the plant, a specimen of which was sent him by Dr. Nicholson of Antigua. Determining that it belonged to the family Simarubaceae and the genus *Castela*, but finding it not to conform to the descriptions of the known two species of *Castela*, he placed it as a new species and called it *Castela Nicholsoni* in honor of Dr. Nicholson.

The following is a translation of Hooker's description of *Castela Nicholsoni*:³

The main stem or trunk not exceeding four feet, much branched; branches provided with short axillary spines; small branches terete, silky-hoary. Leaves evergreen, alternate, sparse, in scattered groups, sessile, coriaceous, elliptical, mucronate, silky-gray beneath and margin revolute.

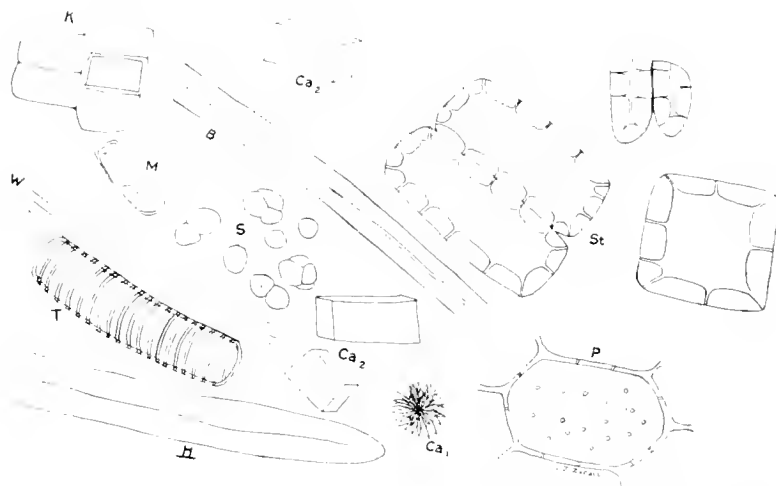
Flowers small, saffron- or orange-colored, dioecious. Peduncle axillary, short, one- or two-flowered.

Staminate flowers.—Calyx four-parted nearly to the base, segments ovate, variegated, persistent. Petals four, ovate, spreading, deciduous. Stamens: eight, short, hairy, inserted on the fleshy receptacle. Anthers oblong, divided or sagitate and yellow.

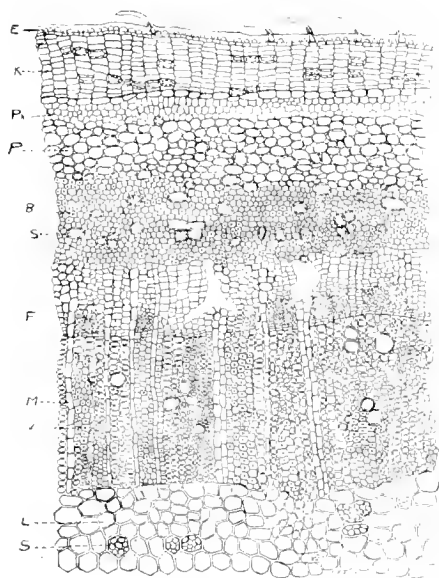
Pistillate flowers:—Calyx and corolla, same as in staminate flowers. Ovary: four, contiguous, one or two frequently abortive. Style short or none. Stigmas: four, small, and subulate. Stamens: eight, short, abortive, hirsute and adherent. Drupes: four, subglobose, base acuminate or short pedicelled, small, purple or red when mature. Nut compressed, ovate, bivalved, rugose, unilocular. Seeds suspended, sub-ovate, compressed. Albumen small, thin, flesh-colored. Embryo almost as large as the seed. Cotyledons straight, foliaceous.

Dr. Nicholson observes that "it is a beautiful little shrub, especially when in fruit. It is found growing in the utmost luxuriance in an arid calcareous soil where everything else is burnt up."³

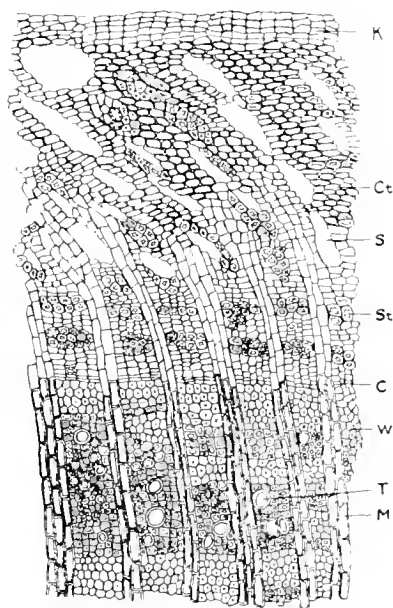
In America it is found in "southwest Texas and northern Mexico growing on thin, rocky, mesquite or post-oak land, and having an especial tendency to be found on small rocky hills."¹



Elements found in powdered *Chaparro Amargosa*: St, stone cells, P, parenchyma cell of pith; Ca₁, calcium oxalate from leaf; Ca₂, calcium oxalate from root bark, S, starch grains, H, hair; T, trachea; W, wood fibre; M, medullary ray cell; K, cells from cortex, one containing a monoclinic crystal of calcium oxalate; B, bast.



Chaparro Amargosa. Transverse section of stem: E, epidermis; K, cork; Ph, phellogen; P, parenchyma; B, bast; St, stone cell; F, phloem; M, medullary ray; X, xylem; L, lignified parenchyma; S, starch.



Chaparro Amargosa. Transverse section of root: K, cork cells; Ct, cortex; S, schizogenous cavities filled with a yellowish mucilage; St, stone cells, C, cambium; W, wood fibres, T, trachea, M, medullary ray.

It is also mentioned as being found on bluffs along the Rio Grande and its tributaries.⁴

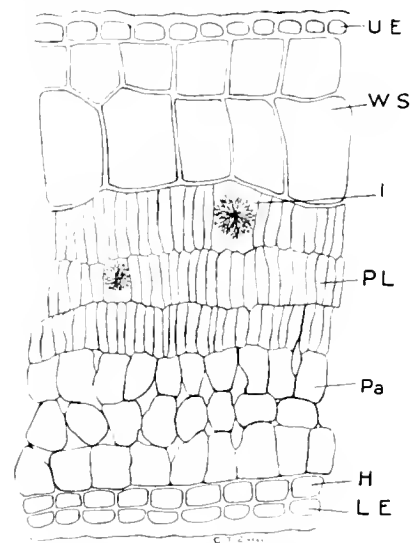
The drug consists of the entire plant, all parts of which contain the bitter principle.¹ The stems reach a length of 12 dm. and a diameter of 15 mm. They are rough, of an ash-gray color and frequently covered with lichens, while the branches are covered with hairs and tipped with sharp points. It is very hard and the fracture is very tough and splintery. If cut smooth, the end shows a green bark about one mm. thick, the light-yellow wood has several rings of darker wood-fibres and the pith is about one-tenth the whole diameter.

The root is much larger than the stem, having a diameter of 20 to 45 mm. It is twisted and irregular in shape and covered with a rough, gray and cinnamon-brown

bark which is furrowed and sometimes 6 mm. thick. In transverse section this bark shows a radiate structure, the rays being undulate which is characteristic and aids in distinguishing this from other hard and tough roots used in medicine. The wood is similar to that of the stem.

The dry drug has no odor but upon soaking in water an unpleasant nauseating odor develops.

Microscopically the transverse section of the stem is quite interesting and has a characteristic structure. The epidermal cells have very thick outer walls and some of the cells are modified to form non-glandular hairs in which the lumen is almost indistinguishable. There is a sub-epidermal layer of cork containing stone cells; then the phellogen, phelloderm and primary cortex followed by a thick layer of bast in which are many stone cells. Between this and the wood is the peculiar phloem. The xylem consists chiefly of wood fibres, tracheae being very



Chaparro Amargosa Transverse section of leaf U E, upper epidermis, W S, water-storage cells; I, idioblast containing a rosette aggregate of crystals of calcium oxalate; P L, palisade cells; P a, parenchyma, H, hypodermal layer, L E, lower epidermis

few. The medullary rays are one to two cells wide and contain starch. The pith contains much starch and is made up of thick-walled polyhedral cells whose walls are lignified and marked with narrow slit-like pores.

The leaf is typical of the Xerophytes, being very small and well protected by a thick-walled epidermis and on the ventral surface by many hairs similar to those of the stem. Beneath the upper epidermis are two rows of large, thin-walled water-storage cells similar to the corresponding structure of the leaf of *Ficus elastica*. The palisade structure is made up of three or four layers of very narrow cells, among which are found idioblasts containing calcium oxalate in rosette aggregates. The parenchyma is compact, with small intercellular spaces, and next to the lower epidermis is a distinct layer of what may be called hypodermal cells.

Powder: -Starch grains abundant in pith and medullary rays; grains angular or spherical; four to nine microns in diameter, point of origin central, indistinct,

not cleft; lamellae indistinct. Medullary ray cells have thick walls marked with many simple pores. Calcium oxalate in large monoclinic and twin-form crystals; in root bark abundant. A few rosette aggregates from the leaf. Stone cells many, square, rectangular, irregular and with thick walls. Parenchyma cells of pith large, walls thick, lignified and marked with small circular pores. Tracheae few with spiral markings. Bast fibres abundant, long with very narrow lumen. Wood fibres abundant. Non-glandular hairs with very narrow lumen. Leaf fragments few.

BIBLIOGRAPHY.

- (1) Nixon, P. I., "*Chaparro Amargoso* in the Treatment of Amebic Dysentery," *J. A. M. A.*, 1914, Vol. 62, p. 1530.
- (2) Putegnati, J. L., "*Castela Nicholsoni*," *New Remedies*, 1883, Vol. 12, p. 102.
- (3) Hooker, "On a New Species of *Castela*," *Botanical Miscellany*, Vol. I, p. 271.
- (4) Small, "Flora of the Southeastern United States."

THE SIMULATION OF DISEASE.

Reprint No. 433 from the *Public Health Reports* was issued November 9, 1917. This was prepared by A. G. DuMez, technical assistant in the Hygienic Laboratory, U. S. Public Health Service. In this paper some of the many methods employed for effecting simulation of disease by the use of drugs, chemicals and septic materials are given. The subject is of considerable interest at this time and its study is of some importance to pharmacists, in view of the fact that the services they may be called upon to render will include investigations of this kind. It is surprising to note the many means that are employed for inciting conditions that simulate diseases and the knowledge that must obtain with some of these methods. The substances enumerated in this paper are grouped under the diseases, the diagnostical signs of which their use is to simulate. Brief outlines of the methods recommended for the detection of these frauds are also included, where specific information of this kind has been available.

The divisions are: Substances used in simulation of diseases of the skin and subcutaneous tissue; of the eye; of the ear; of the throat; of the respiratory system; of the digestive system; of the circulatory system; of the kidneys; of metabolism and other diseased conditions. As an example for simulating eczema: After abrading the skin by scraping with a sharp-edged instrument or rubbing with some rough material, one or more of the following are applied: Croton oil, sulphur, acid substances, oil of cade, ointment of mercury, or mezerium bark. For detection, according to Blum (1916), the eruptions produced may be distinguished from those of the true disease by the fact that they are disseminated and do not form confluent masses. Furthermore, the skin, after the removal of the crust, does not appear red, dry, and hypertrophied, as in true eczema.

It is surprising to note the extent to which these men will go in applying injurious substances to bring about simulation of diseases. The results from some of these are doubtless apt to be permanent and remind them hereafter of their attempt at deception.

Quite a lengthy bibliography follows and reprints may be obtained from the usual source, namely, Superintendent of Documents, Government Printing Office, Washington, D. C.

SECTION ON EDUCATION AND LEGISLATION

PRACTICAL DRUG STORE EXPERIENCE BEFORE ENTERING COLLEGE.*

BY OTTO RAUBENHEIMER.

"All things must change
To something new,
To something strange!"

Longfellow--Keramos, L. 32.

Thirty years ago, when the writer entered a college of pharmacy, there was no prerequisite clause of one or more years of high school education. Nevertheless, the pharmacy students at that time were of a different type and of a better class than those of to-day. Many of my fellow students were graduates of high schools or similar institutions, and with pride do I look upon the members of the "Blizzard Class" and join their annual reunions. Thirty years ago in the good old times the student was not required to possess any "counts," *but he was compelled to have two years of practical drug store experience before entering a college of pharmacy!* The object of my paper is to point out the advantages of such professional training in a pharmacy before entering college, and I will divide them into four parts.

I. LOVE FOR PHARMACY.

How frequently, how very frequently, does it happen that a young man is advised to take up pharmacy, enters a college and after the short time of a year or so, takes up another profession or business. A pharmacist's bed is not one of roses and if it is, then they have plenty of thorns! The apprentice should first of all become familiar with the "ups and downs" in the life of a pharmacist. Only those who truly love pharmacy will stick to it. The apprenticeship is a true test for fitness, and these "survivors of the fittest" are the proper material for pharmacy students and for future pharmacists!

II. PRACTICAL TRAINING.

The apprentice who is employed in a drug store, in which pharmacy is practiced and prescriptions are compounded, is bound to obtain some practical knowledge. I know I did and thousands of others did the same. I do not refer particularly to the sweeping or mopping of the floor or the cleaning of mortars and graduates, although even such work and "knowing how to do it" is of benefit to the future pharmacist. In cleaning the shelf bottles the apprentice becomes familiar with the appearance of the drugs, chemicals and preparations, including their odor and even their taste, and besides this is learning the pharmaceutical nomenclature. He also becomes familiar with pharmaceutical apparatus and operations, a very important factor.

Right here I want to answer the criticism which will surely be made, namely: "In some stores the apprentice will receive no training and in others he will get a

* Read before Section on Education and Legislation, Atlantic City meeting, 1916.

wrong training." If there are any such so-called pharmacies then they should not be classed as such. Besides that, the apprentice will soon discover these things and will look for another, *real preceptor*.

III. COLLEGE EDUCATION.

"A little knowledge is a dangerous thing!" However it is better than none, especially in pharmacy.

Imagine a pharmacy student who has never seen a mortar or pestle, who has never heard of the U. S. P. or N. F., who does not know how to hold a graduate, and who has no idea of the approximate weight of a kilogramme or a grain. It is extremely difficult to teach such a student, even in the well-equipped pharmaceutical laboratories of our colleges! The time is too short at least in a two-year course, as at present.

A student with practical drug store experience has a very great advantage over his fellow-student, who lacks this, in being able to understand the lectures and to benefit by the quizzes and laboratory work.

IV. STATE BOARD EXAMINATION.

Most colleges of pharmacy admit the student at the age of seventeen and consequently graduate him when but 19 years old. This graduate is *supposed* to spend two more years in a pharmacy, which together with his two years of college training will give him a total experience of four years. By this time he will also attain the age of twenty-one, required by the State Board before taking the examination.

Theoretically, very good! However, practically no good! The graduate who follows this example and who works in one of the commercial drug stores of our age, will surely forget pretty much all he learned in college and will not pass the State Board examination, if same is strict, as it should be. This is one reason why we have so many Ph.G.'s who are not licensed pharmacists.

I can not help to state here that the required 4 years' experience is frequently faked by false affidavits, and it is therefore the duty of every State Board to inquire into this serious matter.

Two years of practical drug store experience *before entering college*, together with the college course and sufficient time in a pharmacy to make a total of four years, would certainly be an ideal condition. For this reason the two years of experience before entering college is a check on the practical training.

I have given this matter serious consideration and have as a result added the following paragraph in the catalogue of the College of Pharmacy I am connected with:

PRACTICAL EXPERIENCE.

Inasmuch as the candidate when taking the Board of Pharmacy examinations in most all the States of the Union is required to have four years of professional training in a retail pharmacy in which prescriptions are compounded it is very desirable that the student, *before entering the College, should possess some practical drug store experience.*

Such practical experience will also serve as a foundation upon which the student can build a solid structure. From the observance of our professors and instructors those students who are apprentices in a pharmacy can very readily comprehend the lectures and the laboratory work.

CONCLUSION.

Have we not wandered on the wrong road in our pharmaceutical education? Have we completely forgotten that excellent apprenticeship of old?

Do not let us educate "paper pharmacists," students who only look for a degree, but let all the colleges of pharmacy require practical experience as one of their entrance requirements!

ABSTRACT OF DISCUSSION.

L. E. SAYRE: When I first went to Kansas, I insisted upon practical experience, and that the statements thereto should be certified. We found, even under these conditions, that the reports could not be relied upon. The final decision arrived at was that it made no difference whether the students obtained their experience before or after college attendance.

As an instructor, my preference is for practical store experience after college attendance; too many young men come to school, after store experience, imbued with an idea that much of what is taught is unnecessary, or that they already know, and as a result they do not develop into good students.

If we could select the stores and the preceptors then it would be a different matter, but as a rule the experience of the clerk is not conducive to the making of a good pharmacist.

A MEMBER: It seems to me that a clerk is bound to learn something of value for his studies, and that it should be an easier matter to teach the one with some experience than one without any.

JOSEPH WEINSTEIN: I quite agree with Prof. Sayre, but only in part; most of the young men in the stores of New York are necessitated to gain experience that will be of value to them in school.

H. C. CHRISTENSEN: Speaking from personal experience, I had advantages over my room- and classmate, who had a better preliminary education, because of my store experience. I thought the matter of experience had been given approval long ago.

JULIUS A. KOCH: Educational institutions are acknowledging that practical experience is the best education; schools in engineering send their students into the machine shops. Pharmacy adopted the idea long before other technical schools thought of the value of practical experience. Are we going to give up this plan now?

IOWA'S PREREQUISITE LAW.*

BY J. M. LINDLY.

In considering Iowa's Prerequisite Law on this occasion, it is not necessary to enter into a detailed history of pharmacy in Iowa, although a few brief references thereto may be desirable.

The Pharmacy Law of Iowa was enacted in 1880. It has undergone several modifications during the thirty-seven years that have followed, but the essential features have continued to the present time. The administration of the law was placed in charge of the "Commissioners of Pharmacy," three in number, one of their duties being the licensing of those who wish to enter the practice of pharmacy. The original law provided for the licensing of all who were in the drug business at the time of the passage of the law. Subsequent admission was to be by two methods, either by examination before the commissioners, without regard to experience; or, without examination, on the presentation of a diploma from "an incorporated college or school of pharmacy" that required four years of experience

* Read before Section on Education and Legislation, A. Ph. A., Indianapolis meeting, 1917. (See also "Iowa Prerequisite Law," p. 928, October issue, 1917.)

including the time at school. These two methods of admission continued, with slight modification, until 1906, when all applicants for registration were required to pass a satisfactory examination before the commissioners of pharmacy. The change in 1906 provided that "Graduates of reputable pharmaceutical schools and colleges whose entrance and graduation requirements are equivalent to those prescribed by the American Conference of Pharmaceutical Faculties, for the year 1905 (this last phrase later eliminated), and whose course of study consists of two years of not less than thirty-six weeks each, shall be eligible to take the examination without proof of experience as hereinbefore defined." All others taking the examination must show four years of experience.

This change of 1906 did not prove to be entirely satisfactory. The graduate was regarded as competent professionally but deficient commercially. The licentiate, prepared in the school of experience, was considered as competent commercially but deficient professionally. In recent years, at the meetings of our Iowa Pharmaceutical Association, considerable discussion has been indulged, informally, concerning this subject. This discussion reached the point of concrete action last February while our association was holding a mid-winter meeting in Des Moines, at which time a resolution was unanimously adopted favoring the so-called prerequisite law or idea. Accordingly, some of the officers of our association, with the counsel of an attorney, who had formerly been an assistant in the Attorney-General's office, prepared a bill which was introduced by myself in the Senate, March 15th, known as Senate File No. 548, and which passed the Senate April 4th and the House of Representatives on April 12th, and went into effect July 4th of this year of 1917.

The most important feature of this bill is the requirement that all who would aspire to take the examination for registration as a pharmacist must have the prerequisite qualification of having "successfully completed the work of two college years in a reputable school or college of pharmacy," and have had two years of actual experience in a drug store. This "reputable school or college of pharmacy shall be such school or college of pharmacy whose entrance and graduation requirements are equivalent to those prescribed by the American Conference of Pharmaceutical Faculties for the year 1917."

What are the entrance and graduation requirements of such a school? Although it is presumable that the most of you are familiar with these particulars, it may be of interest to someone that these be here stated. Turning to page 203 of the Proceedings of the Seventeenth Annual Meeting of the American Conference of Pharmaceutical Faculties, we find (1) "The institution shall require of each candidate for graduation not less than 1200 hours of instruction, of which at least 500 hours shall consist of lectures and recitations. Such work to be given in a period of not less than fifty weeks, occupying not less than two full college years, and at least two months should elapse between these two years;" (2) "The requirements for admission of students to the school or college as candidates for any degree shall be: (a) A minimum age of seventeen years, except when the candidate is a graduate of an accredited high school or of an institution of equal grade, in which case no age limit shall be demanded; (b) Evidences of the satisfactory completion of education beyond the eighth grade equivalent to 15 counts

shall be required of each student. A count shall consist of one-hour instruction per week for a school year of 36 weeks," etc. This would mean the completion of the 9th grade in the public school as one of the requirements for entrance into the school of pharmacy.

The new law may be regarded as a compromise between the extremes found in the preceding law. Instead of four years of experience being required of the applicant who was not a graduate in pharmacy, only two will be required, and that will now be required of all, even of the graduate. Another provision, the aim of which is the easy adjustment of the new law to present conditions, is that any unregistered person who was clerking in a drug store at the time the law went into effect shall be allowed to complete his four years of apprenticeship and take the examination.

It may be asked why the first attempt to secure the enactment of the prerequisite law in Iowa was successful? This success may be ascribed to several facts and considerations. (1) Its advocates had a good talking point inasmuch as the Iowa statutes already required a much higher prerequisite educational standard for admission to examination for practicing medicine, law, dentistry, and even of veterinary medicine, than had been previously required of the pharmacists. Even this new pharmacy law does not come up to the standard set for some of these other professions. The proposed change sought in the pharmacy law was only an attempt to conform to the general spirit and letter of the Iowa statutes. It was only in keeping with the spirit of the times. (2) The Iowa Pharmaceutical Association is a strong organization. There are about 1700 drug stores in the state and there are about 1700 members in the association. The association is greatly aided in securing and in retaining members and in keeping alive a wholesome and active enthusiasm by two strong auxiliary organizations, one being the Iowa Pharmaceutical Travelers' Association, organized in 1908, and the other is the Iowa Druggists' Mutual Insurance Association, also organized in 1908. In the association itself is a legislative committee composed of one member from each county in the state. Besides this committee, there is the executive committee of three members, and there is the advisory board of eleven members, being one from each congressional district. All three of these committees may work in conjunction on legislative matters. By having a member of the legislative committee from each county, the committee has an extensive personal acquaintance with the members of the legislature. The influence of personal acquaintance is thus carried to the extreme. In connection with organization, it may be mentioned that during the last ten years there have been at times as high as sixty-five local N. A. R. D. associations or units, being city, town or county organizations. These, of course, were centers of influence. (3) A Bulletin, issued monthly by the Association, placed important information directly in the hands of the druggists of the state. If action was sought, direction was thus given to the rank and file. (4) During the past winter, fortunately, there were four members of the legislature who were registered pharmacists, three in the Senate and one in the House of Representatives, who gave their personal attention to such legislation as pertained to the affairs of the pharmacist. The chairman of the committee on pharmacy in each house was one of these pharmacist members.

ABSTRACT OF DISCUSSION.

W. C. ANDERSON: This is a very important paper because it teaches a very valuable lesson in the methods of securing prerequisite laws. In the first place, Iowa presents a very thorough pharmaceutical organization. I believe the paper states that practically every druggist in Iowa is a member of the State Pharmaceutical Association. There is the first foundation for successful work. The rest of the states are interested in knowing how Iowa does it, and I believe the fact that it has been accomplished in Iowa is an incentive to the workers in other states who place that as one of their ideals—every pharmacist in the state as a member of the state association.

The next important lesson that this paper teaches is that if we want to secure results in prerequisite legislation we must meet the conditions as they appear to-day, and not attempt to look into the future, some 10, 20 or 30 years, and legislate for what we would like to see pharmaceutical education at that time. The mistake that too many states are making to-day in trying to secure prerequisite laws is that they are striving for four years of high school for entrance, as part of their prerequisite requirements. They are paying no attention to the hundreds of boys in the state who have entered into the drug store life with the prospect of becoming licensed pharmacists, but cast them aside and say, "You have to come under these conditions the moment the law goes into effect." They are saying, "All your apprenticeship is lost practically, so far as the educational part of it is concerned, and you must go to a high school, and graduate from there before you can enter the practice of pharmacy."

Therefore, if we will take a lesson from this and make provisions for those who have entered pharmacy, the same as this bill does, and then make our entrance requirements to meet the present conditions of the drug business, rather than what we would like to see, perhaps we will be more successful in securing prerequisite legislation. This is a very valuable paper, and the druggists throughout the country, in states where there are no prerequisite laws, will appreciate having this information of how Iowa has been able to do it!

C. B. JORDAN: It strikes me there is one weak point in the law. That is, the standard is that of the Conference for 1917. Before that can be changed, even though the Conference changes its standards, that of the Iowa law remains the same until amended.

R. B. BIRD: It is a mighty fine thing if we keep up to date, let the future take care of itself. When it comes to enacting laws the greatest compliment, it seems to me, we can pay the Iowa people is that they are up to date.

C. B. JORDAN: You misunderstood my contention. Indiana will be glad to get anything. But this law specifically imposes the standard for 1917. That can not be changed without an amendment. My idea is to let the Board fix the standard, or simply adopt the standard of the Conference, without designation of the year, then the advancing standards would become effective.

C. M. WOODRUFF: The present-day tendency, you know, is to exaggerate the importance of vocational training at the expense of the importance of a liberal education. It seems to me the time will come, and perhaps has come, when you will have to have a prerequisite to the entrance to a college of pharmacy. You know in our high schools we have now selective courses. We have also selective courses in our colleges, and it is possible that a person can come through a high school, can even be a graduate of a college, without having a proper preliminary education qualifying him to enter a college of pharmacy. What shall an applicant for admission to a college of pharmacy be required to know before he is supposed to be qualified to enter upon the study of pharmacy?

THE CHAIRMAN: In reply to that, Mr. Woodruff, I want to say that the members of the Conference of Pharmaceutical Faculties have been working 19 years now to determine what should be the proper entrance requirements to a college of pharmacy.

C. M. WOODRUFF: They ought to know by this time.

W. C. ANDERSON: Just one word with reference to Professor Jordan's remarks as to the advisability of states framing their prerequisite laws along lines so that they always would come up to the requirements of the Conference. I believe the Iowa people have acted wisely in specifying the year of those regulations by the Conference. It is a very dangerous thing for any state to enact a prerequisite law providing that the requirements shall be such as are provided by the Conference, without any other specification. You can not know what these requirements will be, or whether they will be advisable to adopt.

J. M. LINDLY: In reference to the standard fixed for 1917 by the Conference, one reason was that the legislators might know something definite of the proposed standard. When an effort was made to defeat the bill, I went to the Governor myself and took this report along with me and showed him what this standard was.

Just one word more, and that was suggested by Dr. Anderson, and that is we do not wish to ask our legislators for something too radical. We have to meet the present conditions. Our situation in Iowa may be different from what it is in any other state. Our old laws were, perhaps, a little different, and we have to make the change in such a way that it will not seriously inconvenience the people or the druggists. There was an objection to the bill and that was it did an injustice to the poor boy. That is the reason for one clause of the law, allowing these boys, who had started in to clerk and put in their four years' apprenticeship, and those who were thus engaged at the time the law went into effect, to go on and complete the four years, and then take the examination. We do the best we can, all the time trying and striving upward. If we can't get all we want, we get what we can.

THE CHAIRMAN: The bill, as it was originally written, did not say the standards as set forth by the Conference of 1917, but it simply said the standards of the Conference of the Pharmaceutical Faculties. The reason the "1917" was put in was because we felt that we would not be able to pass the bill unless we put in a definite statement, as Senator Lindly has already pointed out. It is a weak point in the law.

W. F. RUDD: We have always to consider the reactionary forces in any community in which we live. We have them in Virginia, and those reactionary forces, while in the minority, somehow or other they manage to stand in the way of good legislation and block it before it gets real headway. It seems to me it is eminently right, that instead of providing a future standard, to have one adapted to present conditions and specific, as in the Iowa law, is best.

IOWA PHARMACEUTICAL ASSOCIATION.

The newsy monthly of the Iowa Pharmaceutical Association contains the following appeal to pharmacists, encouraging them in furthering the passage of the Edmonds Bill (H. R. 5531):

PHARMACISTS' ATTENTION.

All over the country there is a feeling that pharmacists are entitled to greater consideration in the government service than has been accorded them in the past. It is impossible under present rules and regulations for a pharmacist to rise to commissioned rank in the Army on the basis of his pharmaceutical training and service. Conditions in the Navy are somewhat better, but the full rank of lieutenant or higher grades are not accorded those who rise from the ranks in the hospital corps.

No better opportunity than the present emergency has ever presented itself for the organization of a Pharmaceutical Corps officered by pharmacists and offering to the enlisted personnel, opportunities for advancement to commissioned rank.

The Government needs a Pharmaceutical Corps right now.

The people are entitled to proper pharmaceutical service in military as in civil life and will demand it.

The problem of securing the passage of the Edmonds Bill is now squarely up to the pharmacists of the country, and every druggist should write personal letters to his Congressional representatives urging the establishment of a Pharmaceutical Corps. Pharmaceutical organizations should hold special meetings if need be to draw up resolutions endorsing the measure. Active and energetic support of the Edmonds Bill is a duty that every pharmacist owes to his profession and to our armies in the field.

WOMEN'S SECTION

TEACHING THE PUBLIC.*

BY ZADA M. COOPER.

In selecting a subject upon which to write a paper I was unable to get away from the idea that we ought to undertake some definite thing each year or, perhaps, for a period of years. There ought to be concentration of effort; scattering our energies either brings no results or at best no tangible ones. We do not know what we are accomplishing or that we are accomplishing anything; the results are lost to us. Enthusiasm and interest are reduced to a minimum. Filled with the idea that we should adopt some definite plan and bend all our energies to accomplish the end sought, then I was confronted with the question what that one thing ought to be. This was no small task for as I have said before at these meetings, said until you are tired of hearing it, I fancy, the number of causes in which we might enlist are legion.

In the general work of the world there are many tasks for which women have leisure that men do not. Our grandmothers did everything for their households but factories and wholesale establishments have taken over many of those duties. It has been a natural evolutionary process but it has left many women unrealizing what has happened and it was responsible for much of the unrest among women during the last generation. Even yet we have not all found ourselves. The necessity of laboring for a livelihood has been a blessing to many of us. Some have had leisure which has not always been used to the best advantage and they have drifted into what Professor Ross calls "competitive ostentation." Surely the woman with little or much leisure owes it to herself and to other women and to the race to employ that leisure in some constructive work.

Then, too, there are many tasks for which women are peculiarly fitted. They have a little different view-point and this is no less true of things pertaining to pharmacy than of civics or politics. Every question to be well rounded out needs to be worked out from women's point of view as well as men's. *You* see phases of *your* druggist's problems that he can not see himself. *You* stand between him and the public. *You* are a spectator but you are *not* disinterested. *You* are sufficiently detached to have a better perspective. *You* hear the comments of other women, *you* know what the public complains of, *you* know both sides of the question.

After this long preamble which I suppose amounts to an attempt to justify my choice of work for the Section to undertake, I shall try to be specific.

The educational or publicity campaigns undertaken by several state associations during the last two or three years have appealed to me very much and it is some such work that I should like this Section to take up. The public needs education about the pharmacist and pharmaceutical things. Almost every phase of the profession about which the public has any idea, now, needs explanation both for the good of its individual members and for the benefit of pharmacists themselves. There is altogether too much misunderstanding and ignorance among people generally because until comparatively recent years it seemed to be the

* Read before Women's Section, A. Ph. A., Indianapolis meeting, 1917.

accepted policy to keep them in ignorance about everything that pertained to medicine. Not every sort of pharmaceutical subject can be handled by the Section because the membership is so largely non-professional but there are plenty of them that can be.

Most of you write papers for clubs and there can be no reason why you can not write papers about things affecting pharmacy. Consider a few of them. You know the pros and cons of Sunday closing, the advantages of shorter hours, the harm in much of the advertising, the evils of patent medicines. You know the menace of the drug peddler, you know why it is better to buy drugs at a drug store instead of a department store, you can boost prerequisite legislation. All these and many more you are prepared to discuss intelligently. Whatever you do toward educating the public reacts for the good of pharmacy professionally and financially. One thing especially fine you can do and, perhaps, you only and that is to teach the public to demand women behind the counter as well as men. If the women demand women druggists the men will see as they have not seen before their value as business getters. The value to the business man is not secondary to the service rendered to women druggists.

Two state associations have been doing very notable work with their educational bulletins or, perhaps, I should say I know about such work in two states. Perhaps others are doing just as much. I refer to Pennsylvania and Minnesota. Some of the subjects that these states have treated will show you, I believe, that you too may have valuable suggestions to offer. Notice carefully the following subjects: Instances of how the pharmacist serves the public, Fraudulent advertising of proprietary medicines, Formula disclosure bills, Coupons and trading-stamp legislation, Pharmaceutical service—its seriousness and responsibility, High prices encourage drug adulterators, The consumption of drugs, Beware of quacks—buy of druggists, Advance in drug prices, Unrestrained sale of drugs scored.

I do not know what machinery would be necessary to put such a plan as this into operation and to keep it working successfully. I have wondered if it might not be undertaken by the Press Committee even though it may differ somewhat from the work usually expected of that committee. Or, if it seemed wise a special committee might have it in charge although in general I believe there is serious objection to multiplicity of committees. Should this be delegated to the Press Committee, the scope of articles would be very much broadened. Instead of being limited as it is now to articles about the Women's Section or those of interest to women of the Section they would have the task of getting papers on any subject appropriate for this publicity and educational work. These papers might be offered to drug journals with the suggestion that every druggist try to get them published in local newspapers. However, it seems probable to me that it would be far better if they could go through the hands of the regular state association committees because of their having a well-organized machine for handling them. I am, of course, assuming that these publicity committees of state associations would use such articles when offered them. Perhaps they wouldn't but I can not help feeling sure that they would if the articles were well written and timely. I suppose there is a great quantity of material written that never gets printed but really good things, I believe, are not often refused. The author of the article and

the Women's Section would both receive credit. We should know that we were doing something definite. Our Press Committee might go a step further if it seemed best and instead of soliciting papers to come at any time on any sort of subject a special list might be prepared for each month or every three months. Such a list might, perhaps, be published in the JOURNAL or sent out in any other way that seemed best.

This whole notion of mine may be altogether visionary. Perhaps it can't be done. Perhaps it isn't even a good thing to attempt. I have not discussed the subject with anyone but I hope that it will be discussed freely even if the discussion should be mostly criticism. If there is any value in it then others may have better ideas of how it might be carried out.

CHEMISTRY OF THE HOUSEHOLD.*

BY MARY L. CREIGHTON.

The chemistry of the household deals very intimately with many important topics among which are the air we breathe, the food we eat and the best methods of preparing and preserving it, the selection of cooking utensils and their proper care, choice of textiles with reference to "fast colors" and effect of certain dye-stuffs upon the fabric, bleaching agents and stain removers, chemical agents for the softening of "hard water," the selection of both toilet and laundry soaps, the problems of artificial light and heat, etc., etc. Under the head of food materials attention must also be given to the character of the various condimental and flavoring agents and baking powders. In fact, the domestic applications of chemistry are so many and so varied that it would be impossible, within the limits of a brief paper, to even refer to them all.

One of the most important subjects which claims attention in the household is the securing of an abundant supply of pure air by means of proper ventilation. We are proverbially careless in regard to providing our homes with an abundance of oxygen—which we know to be as essential as food—but because it may be had for the taking and is not obtained through the medium of the check-book we do not appraise at full value.

Next in importance to fresh air is the food we eat. The principal classes of organic foods are the fats, the carbohydrates—starches and sugars—and the proteids, of which last nitrogen is the essential element. The function of protein is the building and the repair of body tissues, hence animal life can not exist without it. The supply is obtained from lean meat, eggs and some kinds of vegetables.

As a nation we use an excessive amount of protein, a fact which has led to the construction of tables showing those combinations of fats, carbohydrates, minerals, acids and protein which will give most satisfactory results in keeping the human machine up to the highest point of efficiency by meeting its special requirements. The selection of foods must, of course, be governed very largely by circumstances, the industrial worker requiring not only different food materials but a larger amount than the brain worker who takes but little physical exercise.

The scientific training in household science which is now recognized as a factor in the practical education of thousands of young women, and the increasing

*Read before Women's Section, A. Ph. A., Indianapolis meeting, 1917.

general interest shown in this subject during recent years are hopeful signs for the future, since such a course of study has as its very foundation a knowledge of the chemistry of foods as it applies to their selection and preparation. Never before in the history of this country was such attention paid to the question of foods and food values. We hear constantly of the "balanced ration" and of the necessity for a thorough understanding of the chemistry of foods in order that the body may be well nourished with a minimum of expense.

This subject leads naturally to that other one, What garden vegetables are most profitable from the dual standpoint of food value and money value? Also, what crops are best adapted to certain kinds of soil, and how best can the fertility of the soil be maintained by the replacement of chemical substances which have been removed by growing crops? All plants require a sufficient amount of the elements hydrogen, oxygen, carbon, nitrogen, sulphur, phosphorus, calcium, magnesium, potassium and iron, while still other elements are essential to certain kinds of plant life. The fertility of American farms and gardens must be maintained, or restored, in order to provide the largely increased food supply which the times demand.

We have heard much in the past of "intensive farming," but the summer of 1917 has shown a marvelous increase of interest and enthusiasm in this direction, especially among amateur gardeners. Thus the school boys and girls of to-day are learning in a very practical way that chemistry, instead of being a subject of study to be feared and dreaded, is their strongest ally in the partnership with nature upon which they have entered.

The attitude frequently assumed by students toward this highly interesting and valuable branch of their scientific training reminds one of the story of the small boy who, when walking along a lonely road, saw a ghost-like object ahead which, when bravely approached, proved to be a friendly guide-post.

There are comparatively few lines of work in which a knowledge of chemistry and its practical applications will not prove helpful. In addition, the thousands of so-called school gardens are destined to teach their owners far more than mere soil adaptability and how many crops can be harvested from a small plot of ground intelligently planted and tilled. There will be other lessons of thrift, industry and economy that will prove valuable assets both to the individual and to the community in which he lives.

Following the choice of foodstuffs, the chemistry of cooking deals with the best and most practical methods of preparing the different articles for the table, and necessitates a working knowledge of the nature of the materials to be dealt with and of the object sought in their treatment. This is a subject of such extent and importance as to place it in the front rank of household interests.

The purposes of cooking are, to render food palatable by improving its flavor, to aid digestion, and in general to make it more healthful, the particular method employed depending upon the final object to be attained. For example, a broiled steak retains its juices, while if it is desired to extract them the meat is placed in cold water and cooked slowly.

Of the many different ways in which the winter's supply of fruits is cared for—drying, canning, preserving and the making of jams, marmalades and jellies—the last named is usually considered the most difficult. However, with a proper

understanding of the conditions which must be met, jellies of all kinds may be easily prepared.

Careful experiments have made possible the formulation of certain rules for procedure in the handling of fruit juices. These must contain *pectin*, the constituent upon which the process of jelly-making absolutely depends, and if it is shown by a simple chemical test with ethyl alcohol that pectin is not present it must be supplied.

Fruit juices which are both acidic and rich in pectin, as grape and currant, offer the least difficulty, and for these the old-time method of measure for measure of sugar and juice may be safely employed, the amount of sugar necessary in any case depending upon the proportions of these constituents present.

The bread required for the household is a matter of prime importance, especially the quality of the flour from which it is prepared.

The consideration of the questions of a pure water supply and of pure milk are problems for the community rather than for the household.

A knowledge of the chemical composition of metallic cooking utensils will enable the user to select such as are least liable to corrosion, and also aid in the application of effective cleansing agents not likely to be destructive to the vessel itself.

We have been accustomed to think of graduated glassware as belonging to the equipment of the chemical laboratory, but graduated measuring vessels of glass are now at home in the modern kitchen cabinet. From the sanitary point of view, it is also interesting to note that the glass mixing spoon and glass rolling-pin have largely replaced those made of wood, and that a plate-glass slab now offers a great improvement over the old-time moulding board, while the chances are that pastry prepared on this slab, with an ice-filled glass rolling-pin, will be baked on a glass pie-plate in an oven so constructed that the process is open to inspection.

Many grades of ware, for which we are largely indebted to the chemist's art, find use in the household, from the coarser pieces of stoneware to the decorated china table service of delicate pattern and design. Perfect glazing is a necessity for table ware, and the addition of certain chemical compounds to the glazing material has made possible the varied and beautiful tints now shown in the better grades of porcelain.

While the shortage of dyes formerly imported has been the cause of considerable apprehension, the recent displays of bright-colored fabrics has seemed to be unusually large and indicates that members of the household will not of necessity go clad in sombre garments. And the pride exhibited by the people of the United States in using and wearing, as far as possible, articles "Made in America" goes to show that this country is not likely to take any backward steps along these lines, even should the hoped-for time soon come when it would no longer be essential that we depend upon home manufacturers for the commodities hitherto obtained from abroad.

In conclusion: The chemistry of foods is evidently a subject which has come to stay in the American home, and let us hope that its wise study in our schools and its general application to daily needs will exert an influence upon the public health that shall be lasting in its benefits.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CITY OF WASHINGTON.

Most of the time of the October meeting was devoted to a detailed account of some of the activities of the parent Association at the Indianapolis meeting, and of the section of pharmaceutical chemistry of the American Chemical Society at Boston.

On December 5th Mr. Frank Rabak of the Office of Drug Plant and Poisonous Plant Investigations of the Bureau of Plant Industry gave an interesting illustrated talk on the development and future possibilities of the essential oil industry in the United States. He emphasized especially the possibility of utilizing the large quantities of waste apricot, almond and cherry pits which were formerly shipped to Germany for making oil of bitter almonds. Mr. Sievers of the same office presented a paper on poisonous plants as sources of insecticides, and Dr. Stockberger spoke of the development of the peppermint industry on the west coast.

Mr. Flemer mentioned the fact that the Wilbert library comprising some 1500 volumes was still awaiting a purchaser and it is hoped that the members of the Association will advertise the matter among their acquaintances.

Report of a Meeting of the Washington Branch of the American Pharmaceutical Association held Dec. 27, 1917:

Mr. Lewton reported that adequate provisions existed in the National Museum for the custody and display of specimens illustrative of Historical Pharmacy. Members having material of this nature or knowledge of such are urged to communicate with Mr. Lewton.

The National Museum would prefer, wherever possible, that the specimens be offered as outright gifts, but where this is not desirable or feasible, it will gladly accept as loans or deposits, valuable material on the subject of pharmacy, materia medica, and the history of pharmacy. It is customary for loans to be

accepted with the understanding that they will be left undisturbed for a year or more, while deposits are usually made for a longer indefinite period. The museum can not bind itself to permanently install any exhibit, or to keep any certain assemblage of specimens always exhibited to public view. It can, however, agree to safeguard them and keep them available for examination and study whenever desired. In order to avoid duplication of material, the Museum would request that all exhibits offered it as gifts, loans or deposits, be first arranged for by correspondence and the submission of a list or inventory giving an idea of the character and quantity of the material offered.

Two communications from Dr. W. A. Puckner addressed to Mr. Hilton were presented. These communications asked that some action be taken on a proposed code of ethics between pharmacists and physicians for the purpose of eliminating a certain antagonism which it was claimed existed between pharmacists and physicians. Discussion followed as to whether any tangible antagonism actually existed between the two bodies, the prevailing opinion being that none actually existed. Mr. Flemer thought that any movement tending to bring about a better recognition of pharmacists in the government service was worthy of consideration and this might be an opening to attain the end desired.

It was felt that good might be accomplished by sending a resolution from this branch to the parent body embodying some plan by which more cordial relations between pharmacists and physicians could be established.

It was moved that a committee be appointed to consider the problem, to determine how more cordial relations between pharmacists and physicians could be promoted, especially the recognition of pharmacists in the government service and improving the situation with respect to pharmacy in the government service, and to report at the next meeting.

CHICAGO.

The ninety-second monthly meeting of the Chicago Branch of the American Pharmaceutical Association was held Friday evening, December 21, 1917, at Kuntz-Remmler's Restaurant with about 30 members and friends in attendance, president Hugh Craig in the chair.

The Chair appointed as the committee to confer with a similar committee from the C. R. D. A. on making the Branch meetings more attractive to retail pharmacists the following: Messrs. Eicher, Gray and Von Hermann.

The following nominating committee was appointed: Messrs. Day, Storer and Gathercoal. Dr. Bernard Fantus was named chairman of the committee to arrange and care for the proposed exhibit of U. S. P. and N. F. galenicals at the A. M. A. meeting in June 1918, with authority to choose his own associates.

Under committee reports James H. Wells called attention to the large amount of national, state and local legislation of interest to pharmacists. S. C. Henry, Prof. W. B. Day, Dr. J. H. Beal and C. A. Storer discussed the report.

Dr. J. H. Beal as chairman of the Special Committee on Compulsory Health Insurance responded with the statement that the final report of the committee would be ready for the next meeting. He discussed the extent and manner of the propaganda now being carried on in this country in favor of this legislation and of the secrecy maintained as to the real source of the movement and of the money by which it is being carried on.

The Secretary urged the importance of a large attendance to hear this committee report at the next meeting.

General Secretary W. B. Day presented the leading subject of the evening, "National Pharmaceutical Service." He presented in abstract the provisions of the Edmonds Bill and discussed them briefly. He referred to amendments that have been suggested. In his opinion, the provision requiring that candidates for the higher grades of officers must be graduates in pharmacy is very important. Upon it would depend the formation of a reserve corps in which the students in colleges of pharmacy might be enlisted and thereby enabled to complete their courses. In this bill, pharmacy is asking recognition on the same basis as that given medicine, dentistry and veterinary science. But physicians, dentists and veterinarians must be graduates of

their professional schools. If pharmacists now demand that they be accepted regardless of professional training, they greatly weaken their position and endanger their prospects for recognition. He called attention to the provision for promotion from the lower to the higher ranks and strongly urged all pharmacists to make a united effort to secure the passage of the bill in substantially its present form.

The Edmonds Bill was further discussed by Thos. Potts, Harry Hood, E. Von Hermann, E. H. Wisner and others. The point especially dwelt upon was that pharmacists must get back of this bill with a united front and all of their power. They must appear before the congressional committees having the bill in charge and tell them of the absolute need of trained pharmacists in the medical work of the army and why pharmacists are worthy of the recognition asked for. Unless those interested in the bill become very active and lay their cause fully before these committees the bill will receive scant attention and fail of passage.

The following endorsement was unanimously approved:

"The Chicago Branch of the American Pharmaceutical Association strongly endorses all sections of the Edmonds Bill (H. R. 5531), a bill to increase the efficiency of the Medical Department of the United States Army, to provide a pharmaceutical corps in that department, and to improve the status and efficiency of the pharmacists in the Army, and further urges pharmacists to vigorous activity in behalf of the bill, especially calling upon their congressmen to work and vote in its favor."

The present status of the alcohol situation was discussed by S. C. Henry, President Craig and others. Mr. Henry said that no new rulings had been promulgated during the month but that enlightenment regarding a number of the previous rulings was still being sought. Mr. Craig stated that with the commandeering of wood alcohol by the government, the sale of medicated alcohol, which is permitted only to druggists, should be considerably increased. Professor Day questioned as to whether alcohol medicated with 1 percent phenol and somewhat diluted with water might not be used as a beverage.

An exhibit of adulterated crude drugs was made by Secretary Gathercoal and included a number of drugs recently reported adulterated by the Department of Agriculture. Among the adulterated drugs shown were samples of

stramonium, jalap, buchu, belladonna leaves, cantharides, senna, *viburnum opulus*, etc.

The subject of substitutes for glycerin and sugar in U. S. P. and N. F. galenicals was introduced by President Craig by a statement regarding the great lack of sugar in New York and the work of the Druggists' Sugar Committee in that city.

Wm. Gray and I. A. Becker spoke on the use of sugar substitutes, especially invert sugar or corn sugar. Harry Hood dwelt upon the fact that druggists were already cutting down their sugar consumption to one-half of their former requirements.

Secretary Gathercoal mentioned the addendum to the British Pharmacopoeia that has recently been compiled and published dealing with sugar and glycerin substitutes utilized by English pharmacists. He stated that a copy had been ordered by mail and hoped it would be available for the next meeting.

President Craig called for volunteers to undertake experimental work along these lines and to report at the next monthly meeting.

E. N. GATHERCOAL,

Secretary.

CINCINNATI.

Abstract of lecture delivered by Dr. C. T. P. Fennel before the Cincinnati Branch of the American Pharmaceutical Association, January 8, 1918, on "The Manufacture, Preparation and Uses of Antitoxins and Serums" (Illustrated):

For a typical process of manufacturing antitoxins for the cure of certain infectious diseases, the one best known and most widely used of all antitoxic sera is the antidiphtheric serum. The process of manufacture of the other antitoxic sera, which have a place in medicine, differs but little from it. While the general plan of work is practically the same in all laboratories, individual methods may possibly differ somewhat, but there are no "secret processes;" and if there appear to be any, such may be set down almost entirely and safely to the imagination of the persons employing same.

A visit to a biological laboratory where this work is done on a large scale, while it is highly interesting and instructive, gives to the uninitiated very little idea of the expense attendant upon furnishing and operating such a plant, for the various pieces of apparatus have mostly to be manufactured from special designs to suit individual requirements, and time and requirements are constantly changing.

In fact, the necessarily high scientific character of this work itself and the persons in charge of such laboratories precludes the idea of secrecy.

Dr. Fennel lays particular stress upon the necessity of observing absolute sterility in all biological work, showing the sterilization of containers, apparatus and materials by subjecting same to steam under pressure for thirty minutes for three successive days, thus insuring the destruction of any bacteria in or on the apparatus, as well as the killing of the spores, which are so very resistant to all forms of sterilization.

The requirements for the development of culture media are darkness, warmth and moisture, as well as special meat presses and steam-jacketed kettles for making the bouillon.

The prepared culture media are then placed in five-liter flasks, each containing two and a half liters, stoppered with cotton and the necks covered with wax paper. These flasks are then placed in a specially constructed apparatus, which permits the sterilization of one hundred and fifty of these flasks at one time.

The diphtheria bacillus was discovered in 1883 by Klebs and in 1884 by Loeffler and is commonly known by the names of these two distinguished men as the Klebs-Loeffler bacillus. Behring, Litasato, Roux and others contributed to a method of immunizing against the organism, and Ehrlich designed a method of estimating the power of the toxin and of the antitoxin. Millions of these bacteria are required to form a colony as big as the head of a pin. As they multiply in the nose and throat of the patient, they excrete a powerful poison which is absorbed by the patient and causes the train of symptoms characteristic of the disease known as diphtheria.

In order to manufacture an antidiphtheric serum, it is necessary to have a pure culture of the causative factor, the diphtheria bacillus. While all great laboratories usually keep on hand pure cultures of the diphtheria germ, a method of obtaining the bacterium is to collect the organism from the throat and nose of patients having diphtheria. This method is, of course, of great value in confirming the diagnosis in suspected cases. Take two test-tubes, one containing a wire or a small stick of wood, charged with a pledget of cotton at its lower extremity. The other contains Loeffler's blood-serum culture mixture. The contents of both tubes are, of course, absolutely sterile. The swab is withdrawn with

the stopper, and gently passed over the exudate in the throat of the patient. It is then lightly passed back and forth over the surface of the solidified blood serum. This process transfers from the patient to the cotton swab a large number of the germs present in the throat and nose, and from the cotton swab they are again transferred to the surface of the culture media. The now inoculated culture tube is returned to the laboratory as soon as possible and placed in the incubator where it is kept for 18 to 20 hours.

Now one of the large flasks of prepared culture media taken out of the large sterilizer is inoculated with a pure culture of the diphtheria germ. This is known as a "Starter Flask," which is then transferred to the incubating room. After the starter flask has become saturated with the diphtheria germs and their toxic products, it is used to inoculate a large number of other flasks. These flasks are all numbered and returned to the incubating room, where they are kept a number of weeks, during which time the bacteria multiply, developing a toxin which goes into solution in the bouillon. After that, under proper manipulation, all of the bacteria are filtered out of the bouillon, the fluid obtained being absolutely sterile and bacteria free. This filtered toxin is transparent, sparkling and light amber in color. The filtered bouillon, containing the diphtheria toxin in solution represents an exceedingly powerful poison, however, of unknown potency. Unlike other poisons, such as morphine, strychnine, brucine, etc., where the safe therapeutic and lethal dose is known, the bacterial poisons do not give such definite knowledge. Ehrlich's method, however, is now in universal use for measuring the power of diphtheria poison. Guinea pigs of standard weight (250 Gm.) furnish the principle of Ehrlich's method by the resistance shown to the toxic effects of toxins.

Dr. Fennel pays tribute to all manufacturers of antitoxin for the excellent and humane treatment accorded the horses used for this purpose, saying they are carefully groomed, fed and watered and watched over with as much care as patients in a well-regulated hospital.

After the horse has passed all the tests (tuberculosis, glanders, etc.), he is brought into the operating room and an initial dose of (usually) 0.1 milliliter of the toxin, combined with an appropriate amount of standard test antitoxin, is administered. This is in-

jected under the skin and usually causes the horse to undergo a reaction. He may have a chill, a rise of temperature, a rapid pulse, stary eye, rough coat, urinate frequently, liquid bowel movements, generally weak and every symptom of being ill, however recovering after a few hours or a day. Then a larger dose of toxin is administered. He goes through the same experience several times until he reaches finally a dose of about 250 milliliters or 2500 times the original dose.

During this process there is developed in the blood a substance known as antitoxin which neutralizes the toxin. The horse is now considered immune as he possesses in his blood stream sufficient antitoxin to withstand, overcome or neutralize the immense amount of toxin administered to him at one dose. Some time is required for this process to become complete, the average being from three to five months. When the horse is completely immunized he is ready to be bled. This immune horse is placed in the operating stall, a site over the external jugular vein is thoroughly scrubbed and sterilized. A sterile trocar is inserted into the jugular vein, the stylet removed and the canula connected with a sterile rubber tube which passes into the large blood tube, passing through a cotton stopper. From five to seven tubes, with a capacity of 1500 to 1800 mls each, are nearly filled with blood from each horse at a single bleeding, the quantity depending upon the size of the horse. The bleeding does not injure the horse in any way. These filled blood tubes are kept at a low temperature until the clot forms. The clot in forming encloses in its meshes of fibrin nearly all of the blood corpuscles and sinks. While the blood clot itself no doubt contains a great deal of antitoxic value, it is customary to use only the liquid blood serum. To this clear blood serum a 0.4 percent addition of cresols is made as a preservative. After being again subjected to examination by expert investigators for the detection of any bacteria, and then even more searching physiologic tests, it is then ready for the testing of its antitoxic powers.

The process of testing antidiphtheric serum for its antitoxic power is much like that of testing the toxin, but in reverse. The object of this test is to determine as closely as possible the least amount of antitoxin which will just neutralize, and no more, the already determined killing dose of the toxin. The antitoxic unit value of the serum having been determined and the serum having passed several searching

tests for purity, it is now placed in the different packages demanded by the medical profession.

CHAS. A. APMEYER,
Secretary.

CUBA.

The meeting of the Cuban Branch of the American Pharmaceutical Association was held at Havana, January 10th, Dr. J. G. Diaz presiding. Sixteen members were present. Secretary Alac n read the minutes of the preceding meeting, which were approved.

President Diaz declared that he had called the meeting in order to announce to the members the recent death, January 1st, of Prof. Joseph P. Remington, reading the following tribute:

"The present year begins sorrowfully for our profession. On the first day of January, Dr. Joseph P. Remington, the leader of American pharmacists, passed away at his residence, 1832 Pine St., Philadelphia.

"Professor Remington was born on the 27th of March, 1847. His father Dr. Isaac Remington was a distinguished physician of that time. On his mother's side he descended from Townsend Speakman, one of the oldest Philadelphia pharmacists, and inherited from his ancestors that love of work and study which, from his youth, gave character to his personality. While a student, he showed his powerful imagination and his inventive genius by constructing apparatus needed in the laboratory he had formed for his own use.

"He began his apprenticeship in January, 1863, at the age of sixteen, with the firm of Charles Ellis, Son and Co. He then commenced his course in pharmacy at the Philadelphia College of Pharmacy, graduating in 1866. He went then to New York and worked for three years with Dr. E. R. Squibb under whose direction he obtained the vast practical knowledge he possessed in analytical and manufacturing work. Owing to his mother's death he returned to Philadelphia where he worked for four years with the firm of Powers and Weightman. When he left that firm he started in business for himself, until, called in 1871 by Prof. Edward Parrish, he became his assistant in the Department of Theory and Practice of Pharmacy of the Philadelphia College of Pharmacy, which that celebrated teacher occupied until his death. He was retained in this position by Prof. Parrish's successor, the no less famous Prof. William Procter, Jr., after whose death, in 1874, Remington was appointed professor of the above-

mentioned chair. In 1879 he was made director of the Pharmaceutical Laboratory, and in 1893 dean of the college.

"In his forty-six years of teaching he distinguished himself not only for his extensive knowledge, which he presented with admirable clearness to his pupils, but also for the inexhaustible kindness of his soul. Five years ago I attended one of his lessons, and at the end of it his students surrounded him with such respect and signs of affection that he seemed more than a teacher, a loving father in the midst of his children. Few men have had such power of attraction over their followers. On that occasion he had an encouraging word for each one and for all the sweet smile that distinguished him and which was not incompatible with the greatest firmness of character.

"Prof. Remington's activity was astonishing. There is no medical or pharmaceutical publication in the United States to which he has not contributed, and each one of them contended for the honor of inserting his writings that reflected his powerful imagination and his profound and varied learning.

"As an author he leaves us his excellent work 'Practice of Pharmacy,' as well known in the United States as in England, France, Germany and Cuba.

"In collaboration with Dr. Horatio C. Wood, professor of *Materia Medica and Therapeutics* of the University of Pennsylvania, and with Dr. Samuel P. Sadtler, professor of Chemistry in the Philadelphia College of Pharmacy, he has been publishing, since 1879, the 'United States Dispensatory.' This work is a true professional monument in which all the official drugs of the British and American Pharmacopoeias are studied, and, besides, the most important ones not included in those works. Since 1879 he has been the pharmaceutical editor of 'Lippincott's Medical Dictionary.' But the work to which he devoted his greatest energies and, during his last years, the greater part of his time, was the 'United States Pharmacopoeia.' Under his direction were published those of 1890, 1900 and the ninth revision, recently printed. He had accepted this task, from which he derived no material profit, as a patriotic work, his chief pride being that the scientific inheritance bequeathed him by the memorable and most worthy Dr. Charles Rice, former chairman of the Committee of Revision, should not decrease.

"In December 1910, he visited Cuba. The students of the School of Pharmacy tendered him a lunch in the gardens of 'La Tropical'

and presented him with a flag of the School, which he prized greatly, and placed on the wall of his study. On January 5, 1911, the pharmacists of Havana gave him a farewell banquet, and in answer to the toast addressed to him by the writer of these lines, he drank to the happiness of Cuba and declared himself a true friend of the Cubans, an assurance which he made good whenever the opportunity offered itself.

"In September 1915, at the meeting of the American Pharmaceutical Association in Atlantic City, N. J., upon Dr. Alacán's suggestion that the next convention should meet in Havana, Prof. Remington so warmly seconded the motion praising in the highest terms Cuba and the Cubans, that we came very near carrying the point, and should have succeeded had not the powerful reasons of time and climate caused the protectors of the idea to desist from their purpose. That convention chiefly composed of professors of the medical and pharmaceutical colleges of the Union must meet some time between July and September, and in that season of the year the excessive heat of our island makes it impossible to hold the convention here.

"Prof. Remington's interesting conversation was always brightened by witty and opportune anecdotes from which some profitable lesson could in every case be drawn, and he always held the interest of his hearers. He had the good fortune to see his principal aims in life fulfilled. He wished to make a home, and formed a model family; he wished to be a teacher, and enjoyed in that capacity an enviable reputation; he undertook the direction of the Committee of Revision at the time when Dr. Charles Rice had stamped upon it the seal of his prestige, and so successful was he in the endeavor that it will be extremely difficult to find his substitute. The cause of all this, is that Remington devoted his whole time and his whole activity to any enterprise confided to him, feeling sure that, as he said many times: 'Fortune smiles at him who works and waits.'

"His life was not exempt from difficulties; but to those few who opposed him he gave as an answer his renewed efforts to achieve success in his undertaking. Work constituted his greatest pleasure, and he seemed to have adopted as a motto Thomas Jefferson's advice to his daughter: 'A mind always employed is always happy.' This is a true secret, the grand recipe for felicity. The idle are the only wretched.

"I have lost an excellent friend, Cuba a good friend."

Dr. Sylvia Alacán moved that a letter of condolence be sent to Prof. Remington's family and also to the Philadelphia College of Pharmacy, seconded by Dr. Remírez and carried. Adjourned.

JOSÉ P. ALACÁN, *Secretary*.

DETROIT.

The regular meeting of the Detroit Branch of the American Pharmaceutical Association was held at the Wayne County Medical Bldg., January 18th. The plans for the February and March meetings were discussed and a motion was made and carried to hold a joint meeting with the Prescott Club at Ann Arbor, February 14th.

Mr. Wendell, Display Manager of the J. L. Hudson Co., will be present at the March meeting. Miniature window displays will be exhibited and the methods of obtaining the best results will be discussed. Dr. Lescollier of Parke, Davis & Co., will also give a talk on Biological Preparations, Serums, Antitoxins, Vaccines, etc. MAY STRAWN, *Secretary*.

NEW YORK.

The January meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Jos. L. Mayer in the lecture hall of the New York College of Pharmacy on Monday evening, the 14th, at 8.30 o'clock.

Sixty-two members were present.

The regular order of business was changed. The memorial meeting in honor of Charles Holzhauer and Joseph Price Remington was opened with a few words of appreciation by President Mayer.

The following then paid tribute to the deceased in beautiful words: Dr. H. H. Rusby, E. A. Sayre, C. F. Schleussner, E. G. Eberle, Dr. A. R. L. Dohme, Dr. H. V. Arny, C. O. Bigelow, Prof. C. H. LaWall, J. W. England and E. W. Runyon. Letters were read from George M. Beringer, Dr. V. Coblentz and Prof. W. B. Day.

Dr. Jeannot Hostmann then read the following resolution on the death of Mr. Holzhauer:

IN MEMORIAM.

"Charles Holzhauer has answered the call that has taken him to the great beyond. Actively engaged in retail pharmacy for over fifty years, he leaves behind him a record of achievements well worthy of emulation. Honest, useful, thorough, untiring—are some

few of the adjectives that may be truthfully applied to his life's work. He believed in the Golden Rule, and believing in it, he lived up to it. He was devoted to his family, to his friends, to his profession, to his church, to his associations—in fact—he was devoted to everything he was interested in and he was interested in everything that makes this life worth while. His advice, often sought and usually found sound, was born of a nature absolutely unselfish and noble. Well may we repeat the words of the poet:

"To live in the hearts we leave behind us is not to die."

"In so far that the members of the New York Branch of the American Pharmaceutical Association wish to express their heartfelt regret caused by the taking away of their fellow-member, Charles Holzhauer, be it

Resolved, That these words of appreciation be inscribed upon a page set aside in the minutes of this meeting, and be it furthermore

Resolved, That the Secretary be instructed to send a copy thereof to the widow of our deceased member."

It was regularly moved, seconded and carried that these resolutions be adopted.

This concluded the memorial meeting. The regular business meeting was immediately opened. Because of the lateness of the hour the reading of the minutes of the preceding meeting was dispensed with.

Membership Committee: The following applications for local membership were acted upon favorably: Edward A. Sayre, 482 Broad St., Newark, New Jersey; E. W. Runyon, 200 Sixth Ave., New York City.

The application for membership in the parent organization of Lionel T. Andrews, 3917 Syosset Street, Woodhaven, L.I., was passed upon in the usual way.

Committee on Fraternal Relations: The committee because of the lateness of the hour merely reported progress as did also the chairman of the Committee on Progress of Pharmacy and of the Committee on Legislation and Education. The Committee on By-Laws reported that a set of By-Laws would be presented at our next meeting.

Committee on Nominations: Dr. H. V. Army brought the following ticket which was endorsed by all members of this committee.

President, Frank L. McCartney; *Vice-President*, J. L. Turner; *Secretary*, Hugo H. Schaefer; *Treasurer*, Gustave Horstmann. The chairmen: *Progress of Pharmacy*, George C. Diekman; *Fraternal Relations*, J. Leon

Lascoff; *Legislative Committee*, Robert S. Lehmann; *Membership Committee*, T. F. Currans.

Unanimously endorsed by Hugo Kantrowitz, Thomas Latham and Henry V. Army.

It was regularly moved, seconded and carried that the ticket be unanimously elected by one ballot cast by the chairman of the nominating committee.

The following committee was then appointed to escort the newly elected president to the chair: Dr. H. V. Army, Dr. George C. Diekman and Dr. Jacob Diner.

President McCartney with a few appropriate words thanked the members for the honor conferred upon him.

It was then regularly moved, seconded and carried that a rising vote of thanks be awarded the outgoing president and the secretary.

HUGO H. SCHAEFER, *Secretary*.

NORTHWESTERN.

The December meeting of the Northwestern Branch of the American Pharmaceutical Association was held December 5, 1917, at the College of Pharmacy, University of Minnesota, Minneapolis, Minn. President Truman Griffen convened the session. The record of the last meeting was read and approved. Prof. E. L. Newcomb reported favorably on the work of the general membership committee for Minnesota. A detailed report of the Wulling Testimonial Dinner was presented by the secretary and treasurer. Deep regret of the demise of the late President Holzhauer and Charles Caspari, Jr., was expressed from the floor and upon motion the president was requested to appoint a committee to formulate suitable resolutions. About one hundred persons attended the interesting and instructive program of the afternoon.

1. "The Edmonds Bill," by Dean F. J. Wulling.

In his explanatory discussion Dean Wulling clearly indicated the real purport of this measure. The speaker urged all pharmacists to actively support the National Pharmaceutical Service Association and any other similar organizations that have for their purpose the securing of recognition of pharmacists in the government service. Dr. Wulling concluded his remarks with a stirring and patriotic appeal for more efficient pharmaceutical service to the country. Copies of application blanks for membership in the National Pharmaceutical Service Association were distributed and a number of pharmacists joined.

(2) "A Discussion of the War Revenue Law," by W. G. Noyes.

Possibly no one in the northwest was better qualified to discuss this law than Mr. Noyes of Noyes Brothers and Cutler, St. Paul. His remarks were very instructive as well as most interesting. Many of the problems that are continually arising concerning the application and enforcement of this law were cleared up by the speaker. Mr. Noyes solicited any queries and a number of pharmacists entered into the discussion with profit to all.

(3) "The Chemical Investigation of the Resins of *Datura Metelloides*," by Prof. Chas. H. Rogers.

Attention was called to the importance of thorough chemical and pharmacological investigation of the "extractive matters" of drugs in order that, by a clearer understanding of the chemistry and pharmacology of these so-called "inert substances," a better knowledge might be had of the part they play in conjunction with the principal active constituents in the production of the total or composite action of drugs or their preparations. The paper dealt with the chemical classification of the particular resins and also included complete chemical and physical data on the same.

(4) "An Exhibit of Vegetable Drugs Produced during 1917, Medicinal Plant Garden, College of Pharmacy, University of Minnesota," by Prof. E. L. Newcomb.

The exhibit of vegetable drugs more than repaid those who were present at the meeting. Prof. Newcomb's address was a decided stimulus to those who were actively interested in medicinal plant cultivation. The speaker urged all pharmacists to become familiar with correctly prepared drugs and, knowing them, demand them for use in their stores.

CHARLES H. ROGERS,
Secretary.

ST. LOUIS.

On December 28th and 29th, the pharmacists of St. Louis held a mass meeting at the St. Louis College of Pharmacy, for the purpose of discussing ways and means of furthering the interests of the Edmonds Bill (H. R. 5531), creating a pharmaceutical corps in the army. W. C. Bolm was chairman and M. J. Noll secretary of the meeting which became a permanent organization, representing the Alumni Association of the St. Louis College of Pharmacy, the Cinchona Club, the R. D. A. of St. Louis, the St. Louis Branch of the A. Ph. A., the St. Louis Pharmaceutical Society and the St. Louis Drug Club. Special committees were appointed to enlist the interest of the St. Louis Chamber of Commerce, the St. Louis Red Cross, the St. Louis W. O. N. A. R. D., and the St. Louis drug trade in general. A telegram endorsing the Edmonds Bill was sent direct to President Woodrow Wilson. A petition being signed by the drug trade will be forwarded to Samuel L. Hilton, of Washington, chairman of the A. Ph. A. Committee on Status of Pharmacists in the U. S. Service. Arrangements are also being made to have special representatives appear before the committee which has the Edmonds Bill under consideration. Among the speakers were Representatives L. C. Dyer and Joseph Meeker, both heartily endorsing the bill. Professor Francis Hemm, Professor Leo Suppan, C. L. Chittenden, E. A. Sennewald, Carl F. G. Meyer, Dr. W. D. Hoelscher, O. J. Cloughly, J. F. Huesgen and Dr. H. M. Whelpley are among the many who are active in the propaganda.

The central thought of all of the work is to ensure the soldiers as adequate pharmaceutical service as possible. The discussions dwelt upon the deplorable condition existing in many cantonments.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 7.

PHILADELPHIA, November 30, 1917.

To the Members of the Council:

The following budget of appropriations for 1918 is submitted by the Committee on Finance:

Proposed Budget of Appropriations for 1918.

Appropriations for General Expenses:

No. 1 Salaries..... \$ 6150

No. 2 Printing, Postage
and Stationery..... 1000

| | |
|-----------------------------------------------------|------|
| No. 3 Clerical Expenses, Secretary's Office..... | 416 |
| No. 4 Miscellaneous Expenses..... | 200 |
| No. 5 Stenographers..... | 350 |
| No. 6 Traveling Expenses.. | 150 |
| No. 7 Committee on Membership..... | 250 |
| No. 8 Committee on Unofficial Standards..... | 100 |
| No. 9 Year Book..... | 3000 |

| | |
|----------------------------------------------------------|-----|
| No. 10 Premium on Treasurer's Bond..... | 50 |
| No. 11 National Drug Trades Conference..... | 200 |
| No. 12 Section on Scientific Papers..... | 25 |
| No. 13 Section on Education and Legislation.... | 25 |
| No. 14 Section on Commercial Interests..... | 25 |
| No. 15 Section on Practical Pharmacy and Dispensing..... | 25 |
| No. 16 Section on Historical Pharmacy..... | 25 |
| No. 17 Women's Section.... | 25 |
| No. 18 National Syllabus Committee..... | 25 |
| No. 19 Committee on Recipe Book..... | 50 |

\$12091 \$12091

Appropriations for Open Account:

| | |
|------------------------------------------|---------|
| No. 20 Journal | \$ 6250 |
| (a) Publication .. | \$5000 |
| (b) Clerical Expenses..... | 800 |
| (c) Postage and Stationery..... | 300 |
| (d) Freight, Drayage, Miscellaneous..... | 150 |
| No. 21 National Formulary | 1000 |
| No. 22 Badges and Bars.... | 50 |
| No. 23 Certificates | 50 |
| | <hr/> |
| | \$7350 |

\$19441

Do you approve budget of appropriations for 1918 as above proposed? It will be regarded as *Motion No. 14 (Approval of Budget of Appropriations for 1918)*.

J. W. ENGLAND,

415 N. 33RD STREET, PHILA., PA. *Secretary.*

A. PH. A. COUNCIL LETTER NO. 8.

PHILADELPHIA, PA., December 26, 1917.
To the Members of the Council:

Motion No. 7 (Establishment of special Committee on Research), Motion No. 9 (Nomination of special Committee on Research), Motion No. 11 (Election of Members; applications Nos. 20 to 27 inclusive), Motion No. 12 (Approval of Time of Holding the 66th Annual Convention of

the American Pharmaceutical Association), Motion No. 13 (Election of E. N. Gathercoal as Local Secretary for 1918) and Motion No. 14 (Approval of Budget of Appropriations for 1918) have each received a majority of affirmative votes.

Motion No. 8 (Selection of special Committee on Research) and Motion No. 10 (Nomination of special Committee on Research) have both failed of passage.

General Secretary Day writes:

"In the current budget 1916-17, an item of \$25.00 is provided for the expenses of the Women's Section. The bills incurred by the Section amount to \$53.72. Therefore, I move and Professor Koch seconds an additional appropriation of \$28.72 to cover the deficit in this item of the budget."

The above motion will be known as *Motion No. 15 (Additional Appropriation of \$28.72 for Women's Section for 1916-17)*.

Motion No. 16 (Election of Members). You are requested to vote on the following applications for membership.

- No. 28. Russell Newton Loomis, 942 16th St., Boulder, Colo., rec. by F. J. Perusse and Chas. J. Clayton.
- No. 29. Agnes Pauline Bechmann, 1075 11th St., Boulder, Colo., rec. by Francis J. Perusse and F. W. Nitardy.
- No. 30. Israel Sulbin, 1800 N. 7th St., Philadelphia, Pa., rec. by E. G. Eberle and J. W. England.
- No. 31. William R. Neville, Griffith Drug Co., Scarborough Bldg., Austin, Tex., rec. by H. M. Whelpley and J. C. Falk.
- No. 32. Donovan D. Mosher, Wagoner, Okla., rec. by Howard S. Browne and C. V. Nichols.
- No. 33. Thomas David Turner, Henning, Tenn., rec. by E. W. Wright and R. L. Crowe.
- No. 34. C. LeRoy Wall, 5829 Montrose St., Philadelphia, Pa., rec. by E. G. Eberle and Charles H. LaWall.
- No. 35. Edgar B. Sparks, Baptist Memorial Hosp., Memphis, Tenn., rec. by E. W. Wright and R. L. Crowe.
- No. 36. Henry B. Waltermann, 5th and Lock, Cincinnati, Ohio, rec. by Chas. A. Apmeyer and C. T. P. Fennel.
- No. 37. Herman E. Igler, Glendale, Ohio, rec. by Chas. A. Apmeyer and C. T. P. Fennel.

- No. 38. Frank Gannon Ebner, 442 St. Clair Ave., Detroit, Mich., rec. by Ernest Kimmich and Walter M. Chase.
- No. 39. Frank Louis Grothe, 1135 Spring St., Cincinnati, Ohio, rec. by Chas. A. Apmeyer and C. T. P. Fennel.
- No. 40. J. Harry Bruker, 1908 Cleneay Ave., Norwood, Ohio., rec. by Chas. A. Apmeyer and C. T. P. Fennel.
- No. 41. Mrs. Lenore K. Dannettelle, 601 W. 8th St., Cincinnati, Ohio, rec. by Chas. A. Apmeyer and Bertha Ott.
- No. 42. Ralph Freiberg, 3501 Reading Road, Cincinnati, Ohio, rec. by Chas. A. Apmeyer and C. T. P. Fennel.
- No. 43. Dr. Charles George Foertmeyer, 600 Central Ave., Cincinnati, Ohio, rec. by Chas. A. Apmeyer and C. T. P. Fennel.
- No. 44. Fred L. Vilas, Pierre, S. D., rec. by E. G. Eberle and D. F. Jones.
- No. 45. Isam M. Light, 6020 Monroe Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 46. Mrs. Mabel S. Beavo, 4112 N. Springfield Ave., Chicago, Ill., rec. by Jean Gordon and Wm. Gray.
- No. 47. William J. B. Gram, 400 Lake St., Oak Park, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 48. Frank J. Dubsky, 1834 W. 47th St., Chicago, Ill., rec. by Wm. Gray and Wm. B. Day.
- No. 49. Robert Buckingham Whitney, 126 Willett St., Jamaica, N. Y., rec. by W. W. Stockberger and A. F. Sievers.
- No. 50. George Serrins, 214 Broadway, Cincinnati, Ohio, rec. by Chas. A. Apmeyer and Chas. T. P. Fennel.
- No. 51. Albert Schneider, 2nd and Parnassus Ave., San Francisco, Cal., rec. by E. G. Eberle and J. W. England.
- No. 52. William Harris Tibbetts, Pearl and Cecumbia St., Union City, Ind., rec. by Wm. B. Day and J. W. England.
- No. 53. Salvatore Giorgianni, 2272 Pacific St., Brooklyn, N. Y., rec. by A. Graziani and G. Petillo.
- No. 54. James Douglas Yongue, Pickens, S. C., rec. by Henry Plenge and Joseph B. Hyde, Jr.
- No. 55. Michael Sehuster Heckler, 807 Cherry St., Vicksburg, Miss., rec. by E. J. Kennedy and H. C. Christensen.
- No. 56. Robert Jacob Miller, 1800 Green Street, Philadelphia, Pa., rec. by Charles H. LaWall and M. R. LaWall.
- No. 57. Willis Cobb Holcomb, U. S. S. Virginia, care of Postmaster, New York, rec. by J. F. Rupert and J. W. England.
- No. 58. Arthur P. Gronau, Great Lake Naval Training Sta., Hospital School, Company C., 1, Great Lakes, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 59. Cassius Lovelace Clay, 203 New Court Bldg., Royal St., New Orleans, La., rec. by Philip Asher and Wm. B. Day.
- No. 60. Alfred Meade Hirscher, 1807 4th St., S. E., Minneapolis, Minn., rec. by Charles H. Rogers and F. J. Wulling.
- No. 61. Victor Honore Purcl, 2632 Gov. Nicholls St., New Orleans, La., rec. by Philip Asher and Wm. B. Day.
- No. 62. Henry F. Stecker, 4008 Van Buren St., Chicago, Ill., rec. by Wm. Gray and Wm. B. Day.

J. W. ENGLAND,
Secretary.

415 N. 33RD STREET, PHILA., PA.

A. PH. A. COUNCIL LETTER NO. 9.

PHILADELPHIA, PA., January 2, 1918.

To the Members of the Council:

The sad news has been received of the death of Joseph P. Remington, Past President of the American Pharmaceutical Association and Past Chairman of the Council, on Tuesday, January 1, 1918. The funeral services will be held on Friday, January 4, 1918, at 1.00 P.M. at Holy Trinity Church, Nineteenth and Walnut Streets, Philadelphia, Pa.,

J. W. ENGLAND,
Secretary.

415 N. 33RD STREET, PHILA., PA.

A. PH. A. COUNCIL LETTER NO. 10.

PHILADELPHIA, January 17, 1918.

To the Members of the Council:

Motion No. 15 (Additional Appropriation of \$28.72 for Women's Section for 1916-7) and Motion No. 16 (Election of Members; applications Nos. 28 to 62 inclusive), have each received a majority of affirmative votes.

In accordance with Motion No. 9 of Council Letter No. 4, Chairman Hopp has appointed Harry V. Arny as chairman of the special

Committee on Research, and the latter writes as follows:

"Your letter announcing my appointment as chairman of the Committee on Research is at hand and I accept the honor.

"As I understand them, the duties of the Committee on Research are two-fold (a) The formulation of rules and regulations as to how awards from the A. Ph. A. Research Fund shall be made; (b) the formulation of plans for the encouragement of research.

"In performing the first duty, it is highly desirable that the fiscal agents of the Association be represented on the Committee; in performing the second duty, we should select those whose research work speaks for itself.

"It will be seen that in fulfilling the grave responsibility of selecting associates, I have had this thought in mind, choosing from the Council Committee on the Financial Status of the National Formulary, from the Research Committee of the Scientific Section and from the Research Committee of the Conference of Faculties. I hope my selections will meet with the approval of the Council.

"With this explanation, I designate the following Committee on Research: Harry V. Army, Chairman (appointed by the chairman of the Council), George M. Beringer, Julius A. Koch, Henry Kraemer, Charles H. LaWall, Edward Kremers, Wilbur L. Seoville, Alviso B. Stevens, Frederick B. Power and Henry Milton Whelpley."

The above recommendations for membership of Committee on Research will now be voted upon by the Council. Do you approve the names as recommended? This will be regarded as *Motion No. 17 (Approval of Membership of Committee on Research)*.

Upon the occasion of the funeral of Prof. Joseph P. Remington, on January 4, 1918, flowers were sent in the name of the American Pharmaceutical Association, and the following letter of acknowledgment has been received:

"1832 Pine Street, Philadelphia, Pa.

Dear Mr. England:

Please convey to the American Pharmaceutical Association most sincere thanks for their thoughtfulness in sending the beautiful flowers. They were greatly appreciated.

Very sincerely,

(Signed) ELIZABETH B. REMINGTON."

January fifth, 1918.

Motion No. 18 (Election of Members). You are requested to vote on the following applications for membership:

- No 63. Crosby B. Washburn, 32 Adams Ave. W., Detroit, Mich., rec. by Leonard A. Seltzer and A. Alton Wheeler.
- No 64. Andrew J. Cromer, 32 Adams Ave. W., Detroit, Mich., rec. by Leonard A. Seltzer and A. Alton Wheeler.
- No 65. Silverio A. Tamayo, Bayamo, Oriente Rep. of Cuba, rec. by J. G. Diaz and José P. Alacán.
- No 66. J. Max A. Schneller, 111 Wall St., New York, N. Y., rec. by E. G. Eberle and J. W. England.
- No 67. A. Elsa Schmidt, 814 Madison Ave., Peoria, Ill., rec. by E. H. Wisner and G. D. Timmons.
- No 68. Charles Emmett Bosserman, Newport, Pa., rec. by Charles H. LaWall and Ivor Griffith.

J. W. ENGLAND,

Secretary.

415 N. 33RD ST., PHILA., PA.

COMMITTEE REPORTS

NATIONAL COMMITTEE ON THE PHARMACEUTICAL SYLLABUS.

BULLETIN XVII.

In Bulletin XV, sent out on September 29, the chairman stated that he was working on some general plans for the work of preparing the new edition of the Syllabus, and all members of the committee were requested to send suggestions along this line and to express their opinions on several specific questions relating to the scope of the Syllabus. Replies were received from a few members at once but others asked for time in which to consider the matter. Some of these sent in replies later, and others will find opportunities to present their ideas as the work progresses.

Helpful suggestions were received from several members, and H. H. Rusby submitted a carefully prepared statement of some aspects of the work. Free use of the replies was made in preparing this Bulletin.

War conditions are so disturbing that it is difficult to do routine work and doubly difficult to accomplish an extra task like the preparation of a new edition of the Syllabus. Nevertheless, we shall endeavor to complete the work of revision and to bring out the new edition on time. As the third edition is scheduled to become effective on July 1, 1920, it should appear in advance of that date, and we have less than two years in which to complete the work of revision. It will be greatly to our advantage if the greater part of the work is completed at an early date, leaving only perfecting of details for the later part of the time available.

It has been conceded generally that the first two editions of the Syllabus show great progress towards the ideal which we are striving for, and that the second edition is a great improvement over the first. The duty of the present committee is to bring out an edition which shall nearly approach the ideal. To accomplish this we must retain what is good in the second edition and replace what is defective with new and better material.

The chief difficulty confronting us in preparing the Syllabus arises from the existence of two distinctly different kinds of pharmacy schools in the country. In the cities of the East we have the small number of large independent schools giving the traditional two-year course in pharmacy leading to the degree of Graduate in Pharmacy, which may be followed by a one-year graduate course; while in the West we have the relatively large number of university departments of pharmacy, giving four-year courses leading to a bachelor's degree. The briefer course is almost purely technical and is the one for which the Syllabus is prepared. The university course, presumably, should contain all that comprises the briefer course with the addition of cultural and other subjects that would justify the granting of the bachelor's degree at its completion.

Dr. Rusby submits the following pertinent questions along this and similar lines:

1. Is the new edition of the Syllabus to be so framed that it will suffice, with mere modifications, for the period when high school graduation is required for admission, or is it to be prepared expressly for the two-year high school period and radically changed thereafter? The treatment of the subject must be different in the two cases, especially as to the earlier portions.

2. Are we to continue to include in the several subjects the present recognized excess of material, knowing, and all agreeing, that it can not all be taught in the time? If not, what is to be the basis of elimination?

3. Is the Syllabus to be framed exclusively for a course of preparation for the board examination, to prepare for the ordinary clerkship in a pharmacy, being thus complete in itself, but unsuited as the first part of a more extended course? Or, is it to take cognizance of the baccalaureate course and degree of university schools, and to serve for the first year's work of such a course, and at the same time serve for the minimum course for board preparation? This is a very serious question for the committee, for the basic character of its Syllabus must depend upon the answer.

4. Is it practicable to construct a Syllabus for a three-year course that will make a proper basis for a fourth year for the B.S. degree, especially if it be followed by work for the D.Sc. degree? Can an alternative arrangement be provided by which the university schools can be permitted to employ a modification of the three-year Syllabus so that it can serve for their first three years?

5. It goes without saying that the views of all represented should be sought as to the present division of time, inclusion and omission of matter and other general subjects.

With the object of making progress with the work, the chairman will make tentative rulings on these questions, subject to revision later as found to be necessary.

1. The present minimum requirement for entrance to schools of pharmacy which are members of the Conference of Pharmaceutical Faculties is the completion of two years of a high school course, or its equivalent. This requirement has only just gone into effect and high school graduation will not be required for entrance before 1923. It seems, therefore, that the next edition of the Syllabus, probably to be effective from 1920 to 1925, should be based upon the entrance requirements of two years of a high school course, and it is so ruled.

2. While the minimum requirement is 600 hours of instruction for each of the two years of the regular course in pharmacy, it is a fact that the majority of the recognized schools give much more time than this. Therefore, it would seem to be best to retain the present general scope of the Syllabus, but that a strong effort should be made to give proportional treatment to the different subjects which are included. This matter will need more consideration later.

3 and 4. Considering all things, it appears that we can only continue our custom and prepare a Syllabus for the purely technical briefer course in pharmacy with possibly a graduate year of work along advanced lines. The cultural work done in the university schools as a part of four-year courses is elective in great part and it properly varies so much that it would not be feasible for us to limit it in the Syllabus in any way. If we bring out an acceptable edition of the Syllabus it should serve all schools of pharmacy, but in different ways, which must be kept in mind during the work of revision. While prepared as a basis for the courses in the independent schools of pharmacy, it should also be the basis of the pharmaceutical courses in the university schools, these pharmaceutical courses to be supplemented by cultural courses sufficient to satisfy the requirements for the bachelor's degree.

5. At the Indianapolis meeting of the committee, it was decided to secure suggestions and constructive criticism of our work from as many of those who are interested as is possible. The chairman fully appreciates the importance of such help and we should secure it in every possible way, but it must be done in such a way as to allow us to finish our work in time. We can get the help we desire, without undue delay, in at least three ways. First, by considering the criticisms of the present edition of the Syllabus; second, by correspondence with interested persons, and third, by suitable publicity concerning our work as it progresses, which will lead to more criticism, some of which will be helpful.

The most important criticisms of the previous editions of the Syllabus have pointed out that the book has many inconsistencies of treatment and is poorly proportioned, particularly that some relatively unimportant subjects received treatment far beyond what they deserve, also that certain parts of the work have treated the subjects as a text-book or compend should do and not like a Syllabus which should give lists of topics to be included in the various courses, and not develop these topics. These are valid objections and should be kept in mind during all the work of revision. Later we shall provide for editing the revised portions to make them conform as nearly as possible to a standardized method of treatment.

The chairmen of the sub-committees are requested to proceed at once with the revisions of their sections of the work and to transmit the revised separate subjects for distribution as fast as the sub-committees are agreed upon them. In preparing the second edition we found it well to assign different subjects to different members for revision, thus distributing the work. After revision, the part was submitted to the chairmen of the sub-committees for further revision if necessary. Then they were transmitted to the chairman of the whole committee for distribution and final revision before adoption. It is suggested that this method be used as far as practicable.

Nothing has been said in this Bulletin about the proposed Syllabus for the year of graduate work. This is quite different from the matters discussed here, and it will be made the basis for a separate Bulletin.

Respectfully submitted,

THEODORE J. BRADLEY, *Chairman*.

PROCEEDINGS OF AN ANNUAL MEETING OF THE NATIONAL DRUG TRADE CONFERENCE HELD AT THE HOTEL EMERSON, BALTIMORE, JANUARY 4, 1918,
IN PURSUANCE OF A CALL OF THE PRESIDENT UPON THE WRITTEN
REQUEST OF FIVE DELEGATES.

MORNING SESSION.

The meeting was called to order by President John C. Wallace at 10.30 A.M.

The roll being called the following persons answered:

Representing the American Pharmaceutical Association:—John C. Wallace and James H. Beal. (Samuel L. Hilton, absent, had written and approved holding the meeting at Baltimore.)

Representing the National Wholesale Druggists' Association:—Charles A. West, George W. Lattimer and W. L. Crounse, alternate for C. Mahlon Kline.

Representing the National Association of Retail Druggists:—Samuel C. Henry, James F. Finneran and Eugene C. Brokmeyer.

Representing the American Association of Pharmaceutical Chemists:—George C. Hall, W. C. Abbott and J. H. Foy, alternate for B. L. Maltbie.

Representing the American Drug Manufacturers' Association:—Adolph G. Rosengarten, Charles M. Woodruff and A. R. L. Dohme.

Representing the Proprietary Association of America:—Fred K. Fernald, Philip L. Heuisler and Frank A. Blair, alternate for Harry B. Thompson.

C. M. Woodruff moved the adoption of the following resolution:

WHEREAS, unexpected conditions respecting hotel accommodations have made it impossible to hold an annual meeting at Washington this year, therefore be it

Resolved, that the Code of Rules and Regulations requiring this meeting to be held at Washington be suspended by unanimous consent, and that this meeting be hereby declared as regular in every respect as if it had been held in Washington.

Motion duly seconded and carried unanimously.

The minutes of the meeting held April 30, 1917, were read and approved.

The privileges of the floor were duly extended to Charles J. Lynn, president, and W. J. Woodruff, secretary of the American Drug Manufacturers' Association; also to R. C. Stofer of the Norwich Pharmacal Company and Mr. Beardsley of the Proprietary Association of America.

The President made a statement that an annual meeting had been first called for January 7 and 8, and the dates had been advanced to the third and fourth upon the telegraphic request of five delegates. The Secretary supplemented the statement by reporting that within six working hours after he had received the President's first call he had notices to all delegates in the mails; further, that he had notices of the change in dates in the mails within four working hours after he received the telegraphic notice from the President.

The following report of the Executive Committee was then read, duly ordered received and laid over for action later:

REPORT OF THE EXECUTIVE COMMITTEE.

TO THE MEMBERS OF THE NATIONAL DRUG TRADE CONFERENCE:

The Executive Committee of the National Drug Trade Conference begs leave to report that a meeting was held at Room 323 in the Hotel Emerson, Baltimore, Thursday afternoon, January 3, 1918, at which were present all the members of the Committee.

The meeting having been called to order by President Wallace, J. H. Beal moved that any requirement that the Executive Committee should meet at Washington be waived in consideration of the condition with respect to hotel accommodations.

Motion seconded and unanimously adopted.

The minutes of the meeting of the Conference held at Washington, April 30, 1917, were read and the adoption of the same was recommended to the Conference.

The resolutions recommended to the Conference by the joint conference on the subject "The Habit-Forming Narcotic Drug Evil," held May 1 and 2, 1917, were referred to J. H. Beal, A. R. L. Dohme and J. F. Finneran for revision and ordered to be submitted to the Conference for action when so revised.

The Secretary-Treasurer then read the following report:

NATIONAL DRUG TRADE CONFERENCE.

FINANCIAL STATEMENT OF DATE JANUARY 1, 1918.

RECEIPTS.

| | |
|--------------------------------------------------|-----------|
| January 15, 1917, On hand as per report..... | \$410.38 |
| January 26, 1917, Received from N. W. D. A..... | 50.00 |
| January 26, 1917, Received from P. A. A..... | 50.00 |
| February 5, 1917, Received from A. A. Ph. C..... | 50.00 |
| March 16, 1917, Received from A. D. M. A..... | 50.00 |
| June 11, 1917, Received from A. Ph. A..... | 50.00 |
| May 7, 1917, Received from N. A. R. D..... | 50.00 |
| | <hr/> |
| | \$ 710.38 |

DISBURSEMENTS.

| | | |
|--------------------------------------------------------------------------|--------|--------|
| Check 23, Jan. 20, 1917: | | |
| Paid stenographer for copying minutes of meeting. | 5.40 | |
| Check 24, Feb. 20, 1917: | | |
| Postage stamps | 3.00 | |
| Check 25, March 1917: | | |
| R. S. and A. B. Lacey, opinion in aspirin matter | 150.00 | |
| Check 26, March 20, 1917: | | |
| Paid for printing the opinion in the aspirin matter | 10.30 | |
| Check 27, March 21, 1917: | | |
| Dues U. S. Chamber of Commerce | 10.00 | |
| Check 28, April 5, 1917: | | |
| Paid for printing revised list of members, and rules, etc. | 5.10 | |
| Check 29, April 6, 1917: | | |
| Stamps and telegrams to date | 4.90 | |
| Check 30, April 9, 1917: | | |
| Paid for 100 copies Free Press containing article on Narcotic Conference | 2.00 | |
| Check 31, June 11, 1917: | | |
| Paid Shorthand Reporting Co. for reporting Narcotic Meeting | 143.50 | |
| Check 32, December 15, 1917: | | |
| Postage stamps to date | 3.00 | 337.20 |

Balance on hand January 1, 1918 \$ 373.18

There are still bills for telegrams and for mimeographing unpaid that have not yet been rendered. These will not amount to ten dollars.

Respectfully submitted,

CHARLES M. WOODRUFF,
Secretary-Treasurer.

James F. Finneran moved that the Executive Committee recommend that the Conference make the usual assessment of \$50 upon each constituent organization member for the year 1918.

Seconded, put to vote and adopted.

James F. Finneran moved that the Executive Committee recommend that the Conference adopt a resolution providing that the expenses of any officer or delegate assigned to any special duty in the interval between regular meetings shall be paid from the funds of the Conference.

Seconded, put to vote and carried.

A communication from the National Pharmaceutical Service Association was then read, asking that the Conference endorse the Edmonds Bill which provides for a pharmaceutical corps in the army, and also that the Association be invited to become a member of the Conference. After considerable discussion the communication was referred to the Conference with the recommendation that the Conference endorse the general proposition to create a pharmaceutical corps in the United States Army.

F. K. Fernald moved that Samuel C. Henry be requested to invite a representative of the National Pharmaceutical Service Association to address the Conference upon the subject of the communication.

Motion seconded, put to vote and carried.

J. H. Beal moved that the Executive Committee recommend that the Conference stand adjourned for a period of two hours from one o'clock, Friday, January 4, 1918, out of respect to the memory of the late Professor Joseph Price Remington, of Philadelphia, Pa., whose useful life and eminent services to pharmacy have been of vast and continuing value to the manufacturing, chemical and pharmaceutical industries, and to every division of the entire drug trade.

A chorus of seconds greeted the motion and it was put to vote and carried unanimously.

President John C. Wallace was then duly authorized and instructed to telegraph Adolph G. Rosengarten, of Philadelphia, to attend the funeral of the late Professor Joseph P. Remington as the representative of the Conference, or, if impossible to attend, to select someone to act in his stead.

J. H. Beal moved that a committee of three be appointed by the chairman of the Executive Committee to frame resolutions on the life and services of the late Joseph P. Remington, and report same to the afternoon session of the Conference on January 4, 1918.

Motion seconded, put to vote and adopted.

The Chairman then appointed Messrs. A. R. L. Dohme, Samuel C. Henry and R. C. Stofer as such committee.

The Committee then adjourned to meet at the call of the Chairman.

JOHN C. WALLACE,
Chairman.

CHARLES M. WOODRUFF,
Secretary.

The Committee appointed April 30, 1917, to ascertain whether the organization members were willing that the Code of Rules and Regulations be amended so as to give the Conference power of action respecting motions and resolutions adopted unanimously by the Conference, without first securing the approval of each constituent organization as now required by such Code, submitted the following report.

REPORT OF THE COMMITTEE TO SECURE GREATER POWERS FOR THIS CONFERENCE.

GENTLEMEN OF THE NATIONAL DRUG TRADE CONFERENCE:

Your committee appointed to attend the several national associations which are members of this Conference regret to state that they have been unable to complete their work up to this time. They have presented this question to several of these associations, however, and can report that in cases of the N. A. R. D. and the A. Ph. A. there is distinct willingness to transfer to their delegates the necessary powers to act subject to the confirmation by their executive committee or Council in case of the N. A. R. D. and freedom to act alone in case of A. Ph. A.

We were unable to get to the other association meetings and will have to ask that the committee be continued to secure similar action on the part of the remaining association members.

Respectfully submitted,

DR. A. R. L. DOHME,
JAMES F. FINNERAN,
CHARLES A. WEST,
Committee.

Report received and committee continued.

The committee appointed April 30, 1917, to secure recognition for pharmacy on the Advisory Board of the Council of National Defense then submitted the following report which was received and laid over for later discussion:

REPORT OF COMMITTEE TO SECURE OFFICIAL RECOGNITION ON THE NATIONAL COUNCIL OF DEFENSE.

TO THE PRESIDENT AND MEMBERS OF THE NATIONAL DRUG TRADE CONFERENCE:

Your committee upon this important subject, concerned as its activities must necessarily be with the winning of the war by endeavoring to convince the Federal Government that the coöperation and advice of an experienced expert from the drug trade would save the Government both money and time and at the same time secure better results, undertook its mission soon after it was appointed. It was however unsuccessful in securing either a hearing or recognition at that time, being told that such matters had been provided for in the Government's usual routine and methods, in which no change could be made

Your committee ventures the assertion that until the drug trade shall present to the Government, the press and the people as united a front and as well organized and managed an association as does medicine, it can not hope to secure what it wants or what its importance and service entitles it to have. It takes this opportunity to lay before you the experience which six of your delegates had at the War Service Committee Conference, called together by the U. S. Chamber of Commerce on December 12, 1917, at Washington, at the instigation of and under the protection of the National Council of Defense. The history of the War Service Drug Committee, appointed by a conference of manufacturers last spring and called as the result of the Government's experience in failing to have a practical drug man upon its Council of Defense, is well known to you and need not be detailed here. There is no such committee now and the Government has need for and is urgently calling, as I shall show in the discussion to follow, for the appointment of such a War Service Drug Committee by the united drug industries of this country.

The six delegates representing six national associations composing this Conference were present on December 12, at Washington, each a chairman of a war service committee named by his association. They came with the expectation to act separately as six committees. They found that the meeting resolved through a committee named by it that wherever possible a single committee should represent an industry. They held a meeting, suggested by Messrs. Ohliger and Blair, and asked the chairmen of this Committee to attend. They concluded unanimously that this N. D. T. C. met all the requirements of the resolutions passed by the meeting and determined to register this Conference with the notation upon the registration card that its war service committee would be appointed later. They further instructed your chairman of this Conference to call a meeting of the Conference at the earliest possible moment which he did by wire the following morning, also notifying the secretary of this Conference at the same time by wire. This meeting was to be for the purpose of appointing this War Service Drug Committee. Your committee feels that it is their duty, being appointed to secure official recognition of this Conference by the National Council of Defense, to report to-day that the Government is in urgent need of a united representative war service committee representing the active and united drug trade. Urgency is becoming more acute every day since it is becoming apparent that we must supply many more men and at a quicker rate than we had expected to do and it is our duty as patriotic citizens, willing and anxious to do all we can to help win the war, to name this War Service Committee at this meeting. We further believe this committee should have at least one representative of each association, member of this Conference, upon it, and of the manufacturing member association several, also C. L. Huisking as representative of the drug brokers. We think, finally, that this committee should be geographically centralized, if possible, as suggested by the resolutions and should meet at least once a week and devote much if not all of their time to the country's service and that it should have a chairman and a secretary and a stenographer.

Respectfully submitted,

DR. A. R. L. DOHME
EUGENE C. BROKMEYER,
SAMUEL L. HILTON,

Committee.

The Special Committee on the Interpretation and Enforcement of Food and Drug Laws then submitted the following final report which was duly accepted and approved, and the committee discharged.

REPORT OF THE SPECIAL COMMITTEE ON INTERPRETATION AND ENFORCEMENT OF THE FOOD AND DRUG LAWS APPOINTED IN PURSUANCE OF A RESOLUTION PASSED AT A REGULAR MEETING OF THE NATIONAL DRUG TRADE CONFERENCE HELD DECEMBER 16, 1915.

TO THE OFFICERS AND MEMBERS OF THE NATIONAL DRUG TRADE CONFERENCE:

Your Committee, appointed in pursuance of the action taken at the regular meeting of the Conference, held December 16, 1915, and known as the Special Committee on Interpretation and Enforcement of the Food and Drug Laws, begs leave to submit its final report.

Rumors of malfeasance on the part of subordinates in both Federal and State employ

continue to reach our ears, but always indirect or with reservations that make what information is vouchsafed unavailable. For example, it is again reported that an inspector in an eastern state is carrying a side line that he directs to the attention of the retailer as soon as he has finished his inspection and before he has informed his prospect of his findings.

The Chairman of the Committee might give the name and address of a state food and drug commissioner who frankly acknowledged that his adverse report upon one preparation he had condemned had been based upon a misreading of the label which upon a more careful examination was found to state that the pill contained 1-240 grain instead of 1-24; but before the mistake was discovered the dealer had been informed that the pill was substandard, and had resolved to patronize the particular manufacturer concerned no longer.

One evil exists to which attention should be directed. It is inherent in the power which the law gives to administrative bodies to dictate what therapeutic claims may be made for certain drugs and what may not, and to force the opinion of a faction in power upon manufacturers, whatever contrary and equally trustworthy views may prevail.

It is easy for the Government to find experts who will go upon the witness stand and testify that almost any therapeutic statement that may be made is false. In 1877 to 1880 such experts would have sworn that Cascara Sagrada was a fake; in 1894 that diphtheria antitoxin was fraudulent and would not cure diphtheria.

Such testimony under present procedure can only be combated by other expert testimony at enormous expense, even to prove the simplest proposition. The defendant may have hundreds of favorable reports from the most authentic sources; but they will not be admitted even to prove the lack of that intent to defraud which the United States Supreme Court has said is essential to constitute a violation of the Shirley amendment.

The result of this condition is that manufacturers plead guilty when they are not guilty, to save expense; pharmaceutical progress is prejudiced and medicine confined to the bounds by opinionated theorists who regard the practical experience of liberal physicians as unworthy of credit.

If such a condition had existed a century ago medicine and pharmacy would be to-day where they were then.

This weight should be lifted in the interests of justice and progress; but it will not be until our newspapers appreciate the situation and arouse a public sentiment that will drive medical bigotry and intolerance to the rear, in the interest of the very public health of which these doctrinaires assume to be the guardians.

However, your committee was created to afford a medium through which well-founded specific complaints, especially of retailers who are not so able to care for themselves as wholesalers and manufacturers, might reach the fountainhead, and proper redress be afforded. The existence of the committee has been known to the whole industry and trade for two years, although it has been given no work to do; wherefore it begs leave to submit this as its final report and to ask that it be honorably discharged.

C. M. WOODRUFF,
JAMES H. BEAL,
GEORGE W. LATTIMER,
R. C. STOFER,
SAMUEL C. HENRY,
Committee.

George C. Hall moved that the Conference continue its affiliation with the United States Chamber of Commerce during the ensuing year.

Motion seconded by James F. Finneran, put to vote and carried.

The Conference then took up the recommendations of the Executive Committee and respecting the first one, R. C. Stofer moved that a committee of five be appointed to frame resolutions on the late Professor Joseph P. Remington, and that Messrs. A. R. L. Dohme, Samuel C. Henry, R. C. Stofer, John C. Wallace and Frank E. Holliday constitute such committee.

Motion duly seconded and carried.

The resolutions recommended by the joint conference held at Washington, May 30, 1917, under the auspices of the National Drug Trade Conference, as revised by the committee appointed by the Executive Committee for that purpose were read seriatim and adopted as follows:

REPORT OF THE COMMITTEE ON RESOLUTIONS.

J. H. BEAL: Mr. President and Gentlemen, the Committee on Resolutions recommends that the joint convention of members of the National Drug Trade Conference and of delegates from municipal and state governments, and the various organizations and societies existing for the purpose of controlling crime and the evils resulting from the misuse of habit-forming narcotic drugs, and of representatives of various Federal departments, recommend to the National Drug Trade Conference the adoption of the following resolutions:

1. That the results of public and private investigation very clearly indicate that there has been a large decrease in the distribution of habit-forming narcotic drugs through the regular drug trade channels since the enactment of the Federal Anti-Narcotic Law, commonly known as "The Harrison Law," and that the principal proportion of such drugs now supplied to addicts and to the under-world comes through unregistered dealers operating in defiance of law, whose supplies are very largely obtained by theft and burglary and through the operations of smugglers.

2. That, whereas investigation clearly proves that large quantities of habit-forming narcotic drugs are smuggled into the United States, and form one of the principal sources of supply of drug addicts and of the under-world, materially increased precautions against smuggling will have to be taken, before the supply of such drugs to illegitimate distributors can be successfully controlled.

3. Since investigation indicates that a considerable proportion of the supply of habit-forming narcotic drugs in the hands of illegitimate distributors has been obtained through theft and burglary while in storage or *in transit*, and since the number of such thefts and burglaries is constantly increasing, the National Drug Trade Conference earnestly advises and urges all members of the *medical professions and of the drug trade* to a fixed policy of preserving their stock of such drugs in securely locked compartments, vaults, or burglar-proof safes, and under such precautions as will effectually prevent access thereto only by trustworthy and properly authorized employees.

4. That the market for habit-forming narcotic drugs handled by unregistered dealers in defiance of law and obtained by theft, burglary, or smuggling, or other illegal source of supply, is very largely created and sustained by the difficulty of addicts in obtaining such drugs through the normal channels of trade, and who, in their desperation, are ready to pay enormous prices for such drugs.

5. That it is the opinion of experts, who have carefully investigated the subject, that no amount of legislation, either state or federal, will effectually suppress the traffic in habit-forming narcotic drugs by unregistered and surreptitious dealers, until proper and sufficient provisions have been made for the care and treatment of existing drug addicts, whose purchases sustain the secret markets for such drugs.

6. That investigation shows it to be essential to the suppression of the evils due to the misuse of habit-forming narcotic drugs, that provision should be made for the treatment of existing drug addicts in municipal, state, or federal sanatoria, or in private sanatoria, under strict public supervision and control.

7. That investigation has developed the fact that numerous so-called "institutions" for the treatment of drug addicts, under private control, are, in fact, conducted for the profit to be obtained through the supply of the drugs to addicts, or for the exploitation of the addict, and that the methods of treatment used therein are calculated to perpetuate, rather than to cure, drug addiction.

8. That in consequence of the foregoing established facts, all privately conducted sanatoria for the treatment of drug addiction should be subject to strict supervision and control by the public authorities entrusted with the enforcement of anti-narcotic laws.

9. That in order to make state anti-narcotic laws capable of effective enforcement, every such law should contain provisions making it an offense to have possession of habit-forming narcotic drugs, unless satisfactorily explained, and also making simple proof of possession of such drugs *prima facie* evidence of violation of the law.

10. That the furnishing of addicts, not under restraint and responsible control, with habit-forming narcotic drugs, to be self-administered by such addicts as a part of the treatment for the cure of drug addiction, is contrary to public policy and should be prohibited in all cases.

11. That there is great need for the further study of the problem of drug addiction and of the treatment of drug addicts, and that publications especially addressed to the members of the drug trade and to the medical professions are requested to use their best efforts for the collection and dissemination of authoritative and reliable information concerning action of the so-called habit-forming narcotic drugs and the action and reaction of such drugs on addiction patients.

12. That state anti-narcotic laws should contain provision for the revocation of the license of physicians, pharmacists, or other licensed persons, convicted of the wilful violation of the anti-narcotic laws.

13. That the possession of hypodermic syringes or needles by drug addicts should be an offense under the law, and proof of the possession of such instruments by such addicts should render them subject to arrest and restraint.

The Secretary-Treasurer's report was then approved.

The recommendation of the Executive Committee that the usual assessment of \$50.00 upon each organization member be made for the ensuing year was duly approved and the assessment ordered.

The recommendation of the Executive Committee that the expenses of any officer or delegate assigned to any special duty in the interval between regular meetings be paid from the funds of the Conference was duly approved, and it was so duly ordered.

The communication from the National Pharmaceutical Service Association was received, and the recommendation of the Executive Committee referred back for further consideration.

The recommendation of the Executive Committee that the Conference stand adjourned from one o'clock for two hours in respect to the memory of the late Professor Joseph Price Remington was unanimously approved and adopted by a standing vote.

A. R. L. Dohme stated that he had arranged to have flowers sent to the home of the late Professor Remington on behalf of the Conference and his action was unanimously confirmed.

The following report of the special committee on Delayed Importations was then submitted, approved of and the Committee continued:

REPORT OF COMMITTEE UPON DELAYED IMPORTATIONS.

TO THE PRESIDENT AND MEMBERS OF THE NATIONAL DRUG TRADE CONFERENCE:

While this report is not strictly the report of a committee of this Conference, it does represent the Conference as well as the N. W. D. A. at a hearing of the Bureau of Chemistry at Washington on March 25, 1917, called by Dr. Carl L. Alsberg. It was deemed by the secretary of the Conference, since it appeared desirable, at a meeting held on the evening preceding the hearing at the Willard Hotel, that it would better serve the purpose as a N. D. T. C. committee, than as a N. W. D. A. committee.

Your chairman, therefore, feels it desirable to report the result of the hearing. Briefly stated it was that publicity of articles and importers suffering from delay by not being up to standard should not be had. Further, that greater uniformity in methods and standards for admitting drugs should be had at the several ports of entry of this country. Further, that publicity of methods of assay and tentative standards of unofficial drugs should be had, so that importers might advise their correspondents abroad as to what requirements their next shipments of goods should meet. Finally, that the Conference for the drug trade desired a full coöperation between the Bureau and itself to the end that before any new tentative standard or assay or test was adopted, it be referred to the Conference committee consisting of Messrs. C. Mahlon Kline, I. McKesson and A. R. L. Dohme for criticism and change or approval.

Dr. Alsberg agreed to all these suggestions, except the last coöperation suggestion, which he said appealed to him very much, and which he would take under advisement.

At a meeting and dinner of the Baltimore Drug Exchange, which Dr. Alsberg attended as invited guest of honor, he publicly announced that he had favorably considered the coöperation suggestion of the N. D. T. C. committee. Shortly afterwards we acted upon this suggestion and submitted to your committee proposed tentative standards for dandelion root, aletris root and cramp bark (*Viburnum opulus*). Your committee promptly took up the three tentative standards and studied them in the light of their laboratory experience and

records, and reported back their criticism, data and findings. Among these was the finding that cramp bark should be in future as it had been for 20 years or more *Acer spicatum* or mountain maple bark, whereas the Bureau had concluded to permit the use of the common name—Cramp Bark—solely for true *Viburnum opulus* or high cranberry bark.

In the next number of the *Service and Regulatory Announcements*, the official bulletin of the Bureau, there appeared the adopted tentative standards of these three drugs. From this it appears that our suggested changes in dandelion root and aleris root had been adopted, but that cramp bark had to change its 20 years of *Acer spicatum* for *Viburnum opulus*. This was in April or May 1917. Since that time nothing has been heard from the Bureau of Chemistry in the coöperation line by your committee nor did a subsequent effort of your committee to permit cramp bark to continue to be *Acer spicatum* as the U. S. P. VIII described it to be under the name of *Viburnum opulus* with synonym, Cramp Bark, produce any result.

Your committee feels that it might be considered officious by the Bureau for it to knock at its door for more coöperation work, and has hence not heard anything since last summer from the Bureau.

Your committee asks to be continued so that when further suggestions come it may be in a position to promptly reply.

Respectfully submitted,

A. R. L. DOHME,

Chairman.

Mr. Woodruff then gave notice that at the next session of the Conference he would move to amend the first paragraph of Section 4 of the Code of Rules and Regulations so as to read:

Section 4: Meetings—The Conference shall hold one regular annual meeting at a time and place to be designated by the president, and such additional meetings as may be provided for.

The report of the special committee to secure recognition of pharmacy on the Advisory Board of the Council of National Defense was then taken up and discussed by A. R. L. Dohme.

Inquiry disclosed that each constituent organization had its own war service committee.

J. H. Beal then moved the adoption of the following as the sense of the Conference, which motion was duly seconded:

REPRESENTATION ON WAR SERVICE COMMITTEE.

1st. That each of the several constituent associations, members of the National Drug Trade Conference, should appoint its own war service committee to confer with the War Committee of the Chamber of Commerce of the United States, and with the war authorities of the United States Government, in the consideration of matters or questions affecting the particular divisions of the drug trade or drug manufacturing industries which such constituent associations respectively represent.

2nd. That the National Drug Trade Conference suggests the formation of a joint committee composed of an equal number of members from each of the above-proposed war service committees to consider and report upon matters and questions in which the several divisions of the drug trade or drug manufacturing divisions possess a joint or common interest.

3rd. That in so far as it may be proper and consistent for it to act, the National Drug Trade Conference will coöperate with and assist the several war service committees and the above-suggested joint committee in the discharge of their respective duties in representing the various divisions of the drug trade and drug manufacturing industries.

On motion consideration of the motion was laid over until the afternoon session.

President Wallace then appointed the following nominating committee: Messrs. Rosengarten, Henry, Lattimer, Beal, Hall and Fernald.

The hour of one having arrived the Conference adjourned until three o'clock out of respect to the memory of the late Professor Joseph P. Remington.

AFTERNOON SESSION.

The Conference reconvened for the afternoon session at 3.30, all delegates being present.

President John C. Wallace called the meeting to order.

Secretary C. M. Woodruff moved that the motion of J. H. Beal be amended by striking out all of the second paragraph, making the third paragraph read "2nd," and eliminating the words "and the above-suggested joint committee" from the last paragraph.

The motion was seconded, put to vote and carried.

The motion, as thus amended, was put to vote and carried, and now reads:

1st. That each of the several constituent associations, members of the National Drug Trade Conference, should appoint its own war service committee to confer with the War Committee of the Chamber of Commerce of the United States, and with the war authorities of the United States Government, in the consideration of matters or questions affecting the particular divisions of the drug trade or drug manufacturing industries which such constituent associations respectively represent.

2nd. That in so far as it may be proper and consistent for it to act, the National Drug Trade Conference will coöperate with and assist the several war service committees in the discharge of their respective duties in representing the various divisions of the drug trade and drug manufacturing industries.

The committee appointed to frame suitable resolutions relating to Professor Remington then submitted the following report:

JOSEPH PRICE REMINGTON.

WHEREAS, in his wisdom it has pleased Almighty God to take from our midst our distinguished and highly esteemed friend and fellow pharmacist, Joseph Price Remington, and

WHEREAS, the services which Joseph Price Remington has rendered the people of this entire country, the profession of pharmacy, the entire drug trade and the many thousands of young men who have enjoyed the privilege of being his pupils have been of unusual prominence, extent and excellence, and

WHEREAS, the Revision Committee of the U. S. P. has been especially benefited and assisted by his eminent qualities as leader and chairman during a period of over twenty-five years, and the American Pharmaceutical Association has enjoyed his wise counsel and sincere help and support as member, counselor and president and

WHEREAS, the International Pharmaceutical Congress has for many years enjoyed the advantage and benefit of his varied experience and advice and

WHEREAS, all the many interests and branches of pharmacy and the drug trade have by his demise suffered a great and irreparable loss, and his many thousands of friends in this country and abroad have lost and will sadly miss that ever-present and always encouraging smile and pleasant word which was so characteristic of Prof. Remington and has smoothed over so many "rough" and "stony" spots in the life and career of his pupils and friends and

WHEREAS, it seems incredible and difficult to conceive that his many friends, associates and pupils will never in this life again see the genial countenance and grasp the warm friendly hand of our departed friend, now be it therefore

Resolved, by the National Drug Trade Conference in meeting assembled on this the day on which his mortal remains shall be transferred to their last resting place in the "city of brotherly love" in which he has spent practically all his many useful happy years, that in his death pharmacy, and the drug trade and this Conference have lost one of their most prominent and distinguished representatives and friends, and be it further

Resolved, that this National Drug Trade Conference hereby gives expression to its feeling of sorrow at the loss it has sustained through his death and of sympathy with his family in their great bereavement and be it further

Resolved, that a copy of these resolutions be spread upon the minutes of this Conference and as well that a copy be sent to the family of our deceased friend and to the pharmaceutical press.

Respectfully submitted,

A. R. L. DOHME, *Chairman*,
SAMUEL C. HENRY,
R. C. STOFER,
JOHN C. WALLACE,
FRANK E. HOLLIDAY.

The Executive Committee reported back the following resolution which was duly adopted:
Resolved, that the National Drug Trade Conference, not intending to approve any bill or measure it has not deliberated upon, endorses the creation of a pharmaceutical corps in the United States Army.

The motion to amend the Code of Rules and Regulations, notice of which was given at the morning session, was taken up and unanimously adopted.

The first paragraph of Section 4 of the Code of Rules and Regulations will therefore read as follows:

Section 4: Meetings—The Conference shall hold one regular annual meeting at a time and place to be designated by the president, and such additional meetings as may be provided for.

ELECTION OF OFFICERS AND EXECUTIVE COMMITTEE.

The following officers and members of the Executive Committee were then nominated and elected in accordance with the Code of Rules and Regulations to serve during the ensuing year:

President, James H. Beal of Urbana, Ill.

First Vice-President, Samuel C. Henry of Chicago, Ill.

Second Vice-President, Dr. Wallace C. Abbott of Chicago, Ill.

Third Vice-President, C. Mahlon Kline, of Philadelphia.

Secretary-Treasurer, Charles M. Woodruff of Detroit, Mich.

Members of Executive Committee to act with the President and Secretary: John C. Wallace of New Castle, Pa., James F. Finneran of Boston, Mass., Dr. W. C. Abbott, of Chicago, Ill., Fred K. Fernald of Elkhart, Ind., Dr. A. R. L. Dohme of Baltimore, Md., George W. Lattimer of Columbus, Ohio.

Delegate and Councillor to C. C. of U. S. A., Samuel L. Hilton, of Washington.

President James H. Beal then moved that the Executive Committee be authorized to fill any vacancies that may occur during the year.

Motion seconded and adopted.

There being no further business the Conference adjourned to meet upon call as provided by the Code of Rules and Regulations.

JAMES H. BEAL, *President*.

CHARLES M. WOODRUFF, *Secretary*.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service for the seven days ended January 16, 1918.

Pharmacist Charles Slough. Relieved at Chicago, Ill. Proceed to Marine Hospital, Mobile, Alabama. Dec. 31, 1917.

Pharmacist B. E. Holsendorf. Bureau letter dated Nov. 28, 1917. Amended to read "Report immediately to Bureau for temporary duty." Jan. 3, 1918.

Pharmacist C. G. Carlton. Relieved at Lexington, Ky. Proceed to Marine Hospital, Chicago, Ill. Dec. 31, 1917.

Pharmacist Louis W. Ryder. Relieved at Marine Hospital, Mobile, Ala. Proceed to Lexington, Ky., for duty. Dec. 31, 1917.

Sanitary Engr. L. C. Frank. Proceed to Gulfport, Miss., and other places in the vicinity for studies of malaria. Dec. 29, 1917.

Sanitary Engr. H. R. Crohurst. Proceed to Augusta, Ga., to investigate water supply system. Dec. 31, 1917.

Sanitary Inspector W. Purington. Proceed to Greenville, S. C., for consultation on milk situation. Jan. 3, 1918.

Scientific Asst. A. F. Allen. Relieved at Anniston, Ala. Proceed to Hattiesburg, Miss., on special temporary duty. Jan. 3, 1918.

Prof. Carl Voegtlin. Proceed to Philadelphia, Pa., and New York, N. Y., for the inspection of establishments licensed for the manufacture of Araphenamine. Jan. 15, 1918.

Sanitary Engr. L. C. Frank. Proceed to New Orleans, La., and other places in the Southern States for the conduct of malaria studies. Jan. 11, 1918.

Special Expert W. C. Purdy. Proceed to Lonoke, Ark., for duty in connection with malaria investigations. Jan. 5, 1918.

Sanitary Bacteriologist E. J. Thorialt. Relieved at Cincinnati, O. Report to Director, Hygienic Laboratory, for duty in studies of industrial hygiene. Jan. 7, 1918.

Scientific Asst. K. R. Glennan. Relieved at Macon, Ga. Proceed to Houston, Texas, on special temporary duty. Jan. 8, 1918.

EDITORIAL NOTES

Editor: F. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman*; G. M. BERINGER, CASWELL A MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio*.

Editorial Office: 253 Bourse Building, Philadelphia, Pa.

ACTIVITY OF WILD AMERICAN DIGITALIS.

Reprint No. 391 from the *U. S. Public Health Reports* is of particular interest at this time. Martin I. Wilbert had called attention to a neglected source for obtaining digitalis, namely, the collection of the wild-growing plant which has escaped from cultivation and become a weed in various sections of the United States, more particularly in the northwest, where it is found growing in abundance and of the pharmacopoeial variety, *Digitalis purpurea*.

The author of this report, George B. Roth,¹ technical assistant in the Division of Pharmacology of the Hygienic Laboratory, U. S. Public Health Service, in the preliminary remarks, states that in order for these plants to be of commercial importance, it is necessary that the drug come up to pharmacopoeial requirements. This question prompted the investigation of the subject.

The examination concerns the activity of four samples of wild-growing leaves which were collected in Oregon during the season of 1916 and one sample from Washington. For the purpose of comparison, examination was also made of *cultivated* digitalis leaves which were grown in Washington during the season of 1916. The report also includes a sample of the season of 1914 grown in Wisconsin and another in Ohio. Tinctures were made according to the U. S. Pharmacopoeia and their activity determined physiologically by the present U. S. P. method.

All of the Oregon digitalis was collected near Astoria. Sample 1 consisted of leaves gathered from first-year plants about six weeks after the flowering time. They were rather dark in color and the hairs practically free from soil. Sample 2 consisted of leaves from second-year or older plants, about six weeks after flowering time. These were light green

in color. Sample 3 consisted of leaves from flowering plants, and Sample 4 of leaves which had partially dried on the stalk and were yellowish green in color. The largest and best leaves were from plants which grew on moist ground where the plants were shaded about half the day. Too much shade prevents the proper development of the leaves, while long exposure to the sun causes the leaves to turn yellowish.

All of the samples were air-dried immediately after the leaves were collected, except the sample which was dried on the stalk. The process of drying with these samples was as follows: The gathered leaves were spread out in thin layers on floors over which the air could circulate freely and the leaves were stirred frequently, at least every other day. About three weeks were required to dry them thoroughly.

The Washington samples were collected by Prof. A. W. Linton, of the University of Washington, College of Pharmacy. Sample 5 consisted of leaves from plants growing wild near Seattle and were collected in August, while the plants were in blossom. They were air-dried, very dry and brittle and of a yellowish tinge. Sample 6 consisted of leaves from cultivated plants of second-year growth, obtained from the drug garden of the College of Pharmacy. They were collected in November 1916, and were the second growth of leaves for the season. The Wisconsin sample, which is reported on as Sample 7, consisted of leaves from first-year, cultivated Wisconsin digitalis, and collected in 1914 before flowering. They were supplied by Prof. Edward Kremers, of the University of Wisconsin. Sample 8 consisted of leaves from first-year cultivated digitalis grown in Cincinnati, collected in November, and supplied by Prof. John Uri Lloyd.

The first two Oregon samples were assayed

¹ "The Activity of Wild American Digitalis," by George B. Roth. Reprints may be had from Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents per copy. (Postage stamps not accepted.)

on a lot of frogs received in October. The other two and those from Washington were assayed on a lot of frogs received in November. All of the samples were assayed on *Rana pipiens*, which were all obtained from the same dealer. Neither the Wisconsin nor the Ohio digitalis was standardized except as to the lethal dose of sample tincture. The first lot of frogs standardized against ouabain showed the lethal dose of 0.00000055, and the other lot of 0.00000045. The lethal dose of standard tincture digitalis of the first two Oregon samples was 0.0066 and of the other samples 0.0054. The lethal dose of sample tincture consecutively was as follows: 0.004, 0.005, 0.004, 0.003, 0.011, 0.007, 0.003, 0.006. The corrected lethal dose of sample tincture is as follows: 0.0036, 0.0045, 0.0044, 0.0033, 0.0121, 0.0077.

From this it will be seen that all the samples of wild Oregon digitalis were stronger than pharmacopoeial sample. The author states that, while this investigation has shown that of the tinctures made from wild-growing digitalis the Oregon samples were several times stronger than that grown in Washington, it should *not* be concluded that wild Oregon digitalis is generally more active than wild Washington digitalis.

It was especially surprising to the author to find that Sample 4, which was made from leaves which had partially dried on the stalk, was the most active of the Oregon samples. These leaves were yellowish green in color and would ordinarily be regarded as leaves of poor quality. The investigation also shows that time of collection has very little to do with the activity. It is also significant that all of the samples were air-dried, notwithstanding that many authorities claim that special methods of drying are necessary to secure a good product. The author concludes that "the wild digitalis which is found in the northwestern states may be utilized as a source of supply for making the various official preparations of digitalis, and that by using ordinary methods in handling and preparing the leaves we may secure a highly active product, which compares favorably with the activity of cultivated leaves grown under more favorable conditions."

Dean Adolph Ziefle, of the School of Pharmacy, has undertaken to collect digitalis in Oregon. A circular issued to farmers and others gives the methods of collecting and drying.

GUIDE TO CHEMISTRY 40.

PLANT CHEMISTRY FOR PHARMACY STUDENTS.

The first edition of this guide was published in 1911 and the present issue is by Nellie Wakeman and published by the University of Wisconsin. Dr. Edward Kremers states in the introduction that this pamphlet is not a text-book or laboratory manual, but merely a guide to both instructor and students.

"It is designed for the pharmacy students of the University of Wisconsin who are required to take plant chemistry as a three-credit study throughout the senior year. For a number of years, this course, together with pharmacognosy, which is given simultaneously as a two-unit hour course, has taken the place of the former course in materia medica.

"In the four-year course, pharmacognosy is preceded by vegetable histology, morphology of the flowering plants, and by general biology; plant chemistry, by pharmaceutical chemistry, inorganic and organic, and by general chemistry, inorganic preparations, organic chemistry, qualitative and quantitative analysis.

"During the first semester, experiments that do not involve a knowledge of advanced organic chemistry are selected, such as the isolation of starch, esterification of fatty and volatile oils, etc. The old-time groups of plant chemical constituents are followed: oleoresins, resins, volatile oils, etc., *i. e.*, constituents that are not chemical units but more or less natural mixtures. During the second semester definite chemical compounds are studied, such as the constituents of the volatile oils, the alkaloids, glucosides, etc."

The guide is divided into fourteen chapters, the first one on "water" and the last dealing with "proteins." The second chapter is on "enzymes" and will serve to explain the plan of presentation:

"The term enzyme is used to designate a class of complex organic substances, of unknown composition, existing in plant and animal tissues, and capable of accelerating chemical action. In the presence of enzymes, also known as unorganized ferments, chemical changes readily occur which would otherwise take place only slowly, or possibly not at all, under the same conditions of temperature, concentration, etc. As a rule the action of enzymes is checked by either increasing or lowering the temperature materially, also by the presence of certain poisons, antiseptics, or anesthetics.

"The chemical composition of enzymes is largely a matter of speculation. So far as is known, they are non-crystallizable substances, generally soluble in water, salt solutions, or glycerin. They are precipitated from their solutions by the addition of alcohol and by some neutral salts, such as ammonium sulphate. Probably an enzyme has never yet been obtained in a pure condition. Attempts at purification usually end in the diminution, or complete destruction, of the activity of the material examined."

Then follows a general classification and sub-classification, concluding with a statement relative to enzyme action. Then follow references, exercises and a series of experiments to be conducted by the student.

COMPILATION OF DIGEST OF COMMENTS ON THE U. S. P. AND N. F. CONTINUED.

The work of compiling the series of Hygienic Laboratory bulletins entitled *Digest of Comments on the Pharmacopoeia of the United States of America and on the National Formulary*, which was interrupted by the illness and death of Technical Assistant Martin I. Wilbert, has been resumed by Dr. A. G. DuMez, who was appointed to succeed the former June 1, 1917. The Digest of Comments for the calendar year ending December 31, 1915, has been completed and is ready for publication, and considerable progress has been made in the preparation of the abstracts for the 1916 bulletin.

A WAR TAX RULING.

C. E. Fletcher, Deputy Commissioner of Internal Revenue, Washington, D. C., has sent out the following ruling:

"Where goods manufactured by a person require further manufacture before being used

by the consumer, *the one completing the manufacture is liable for the tax.* The same rule would apply to bulk goods that require to be bottled or otherwise prepared in order to put them into a salable condition. *Therefore the person preparing the goods in smaller packages and labeling them is the manufacturer within the meaning of the Act.*

"Where a manufacturer prepares a certain article, wrapped and labeled in a salable condition, and for the purpose of advertising will attach the name of any dealer who will handle the same, such a manufacturer is subject to the manufacturer's tax as provided in this section. *The dealer who handles the goods has no interest whatever in its manufacture and his name is simply placed upon the label for advertising purposes.*

"Where a manufacturer prepares an article according to a formula furnished by a dealer and also labels and puts the article into a salable condition, with the dealer's name stamped thereon, such a dealer will be considered the manufacturer, since he holds title to the formula by which the article is prepared."

Dr. A. Homer Smith, at a meeting of the General Medical Board of the National Council for Defense held January 13th, reported on the drug situation, detailing important data regarding chemical glassware, digitalis, alkaloids used in ophthalmic practice, novocaine, mercury, and other drugs. He pointed out the urgent need of supply and conservation, and pleaded for complete coördination of all branches of the Government on all subjects pertaining to drug and chemical need.

Dean Wilbur J. Teeters was unfortunate in having his residence destroyed by fire. Very little of the household goods escaped destruction or damage.

OBITUARY.

IN MEMORIAM.

JOSEPH PRICE REMINGTON.*

1847-1918.

WHEREAS, In the demise of Joseph Price Remington, American Pharmacy has lost its foremost figure and the Philadelphia College of Pharmacy its most distinguished son, therefore be it

Resolved, That we, the members of the Philadelphia College of Pharmacy, in special meeting assembled, express our deep sorrow at his passing and pay tribute to his work and worth.

As a pharmacist, he labored in all the branches of pharmaceutical practice—retail, wholesale and manufacturing, acquiring an unusually wide experience. He graduated from the Philadelphia College of Pharmacy

* Resolution adopted by Philadelphia College of Pharmacy.

in 1866, the subject of his thesis being "Our *Alma Mater*, Its Rise and Progress," little dreaming, perhaps, that he was destined to become a most important factor in the development during the next fifty years.

As an educator, he was trained by Edward Parrish and William Procter, Jr., his teachers, two of the greatest pharmacists that American Pharmacy has produced. In 1874 he was elected to the chair of Theory and Practice of Pharmacy of his *Alma Mater*, later becoming also professor of Operative Pharmacy and director of the Pharmaceutical Laboratory (1877) and then dean of the College (1893). He has taught thousands of students. He was an impressive teacher, presenting his subjects in a logical and practical manner; his language was clear and forcible and his voice distinct and penetrating. He had a magnetic personality and his lectures made a deep and lasting impression. He was the "students' friend," beloved by all. He may have been said to have been a teacher of teachers, for most of the successful teachers of pharmacy in America to-day have been pupils of his at some time in their careers.

Not only this, but he exercised a potential influence upon pharmaceutical education generally, being most active in developing many improvements and important changes in methods of teaching. His method of instruction in operative pharmacy led to the creation of a pharmaceutical laboratory in the Philadelphia College of Pharmacy, the first of its kind in this country, the essential features of which have been adopted by nearly all the colleges of pharmacy in the United States, and he was the first to visualize the importance and necessity of teaching commercial pharmacy in schools of pharmacy and to establish such a course.

As an author of pharmaceutical text-books, he had a national and international reputation. He was the author of the "Practice of Pharmacy," first issued in 1885, used in every college of pharmacy in this country, and widely known abroad; and associate editor of the United States Dispensatory since 1879, the fifteenth edition of which was published in 1883. This edition and the later ones have proved to be the most successful ever issued. Prior to 1883, the work was edited entirely by physicians; since then American Pharmacy has been honored by placing upon the title page of this book the name of a pharmacist as one of its editors and has been properly recognized in its relation to medicine.

As a member of the American Pharmaceutical Association he was most active. Joining in 1867, he served the Association in many capacities, being a regular attendant at the annual meetings, taking a leading part in its discussions and presenting papers on many important subjects, as the volumes of the Proceedings and JOURNAL since 1868 bear ample testimony. His good judgment and safe advice were constantly in demand. He was chairman of many important committees. He proposed the plan which was adopted for the establishment of the Council in 1880 and was its chairman for seven years. In 1887, he elaborated a plan for the reorganization of the Association, dividing the scientific work into sections and secured its adoption. He was president in 1892-93 and permanent secretary in 1893-94.

In 1887, the American Pharmaceutical Association appointed him as a delegate to visit the American Medical Association, and he induced that association to establish a section of *Materia Medica and Pharmacy*, which has since become the "Section of Pharmacology and Therapeutics." He was chairman of delegations subsequently sent to this association, and on such occasions rendered valuable services in bringing the professions of medicine and pharmacy into closer relationship.

Not only in national pharmaceutical affairs was he active, but he took a deep interest in the growth and development of the state associations, frequently attending their annual meetings, making addresses and presenting papers. He was one of the charter members of the Pennsylvania Pharmaceutical Association in 1878 and its president in 1890.

As an executive and leader of men he had international fame. He was president of the Seventh International Pharmaceutical Congress (1893), a delegate to the Pan-American Medical Congress (1893) and the second Congress in Mexico (1896); represented the United States in the Eighth International Pharmaceutical Congress at Brussels (1896) and was president of the pharmaceutical section of the Eighth International Congress of Applied Chemistry (1912). He received the honorary degree of Master of Pharmacy from the Philadelphia College of Pharmacy and the Northwestern University of Illinois. He was a fellow of the Chemical, the Linnean and the Royal Microscopical Societies of Great Britain; and honorary member of the *Pharmaceutische Gesellschaft zu St. Petersburg*, *Institute Medico*

Nacional de Mexico, Societe Royal de Pharmacie de Bruxelles, Societe de Pharmacie d'Invers; an active member of the American Philosophical Society, American Chemical Society, American Geographical Society, Academy of Natural Sciences of Philadelphia, Historical Society of Pennsylvania, Pharmaceutical Society of Great Britain, British Pharmaceutical Conference, and a member of the Federations *Internationale Pharmaceutique* of The Hague, Franklin Club of Philadelphia, Chemists' Club of New York and Authors' Club of London.

But his greatest work probably was as chairman of the Committee of Revision of the Pharmacopoeia of the United States of America, a work which has become of vast importance by reason of its legal standing under the Federal and State Food and Drug Acts. His connection with the U. S. Pharmacopoeia began in 1877, when he served on an auxiliary committee of revision. In 1880, 1890 and 1900 he was sent as a delegate of the Philadelphia College of Pharmacy to the national conventions and in these served as first vice-chairman of the final committee of revision. Upon the death of the chairman of the committee in 1901, Professor Remington was made chairman, and was again elected in 1910, holding the position until his death. The ninth revision, issued in 1916, may be truly called his monument, since the whole work is stamped with his personality.

As a man, "we ne'er shall look upon his like again. Genial, eloquent, clean-hearted and clear-minded," possessed of unusual natural ability coupled with rare executive capacity, he served his day and generation, loyally and enthusiastically, and left a record of achievement that may well serve as an example to future generations.

Just a personal note: Professor Remington was gifted with a charming personality. His courtesy, his tact, his ability to adapt himself to all types of people, made friends of all those he met, while his strong, clean intellect served to inspire them. The meaning of his departure from life may be expressed in the words of S. Weir Mitchell's poem, "Evening," in which is said:

"I know the night is now at hand,
The mists lie low on hill and bay,
The autumn sheaves are dewless, dry,
But I have had the day.
Yes, I have had, dear Lord, the day;
When at Thy call I have the night,
Brief be the twilight as I pass
From light to dark, from dark to light."

Resolved, That this appreciation be entered upon the minutes of the Philadelphia College of Pharmacy, and a copy sent to the family of the deceased.

J. W. ENGLAND, *Chairman*,
SAMUEL P. SADTLER,
CHARLES H. LAWALL,
JULIUS W. STURMER,
HARRY K. MULFORD,

Philadelphia, January 4, 1918 *Committee.*

GEORGE M. BERINGER.

In the decease of Professor Joseph P. Remington, American pharmacy has lost its most renowned advocate and its most eminent teacher. During the past quarter of a century, no other individual has occupied such a commanding position or exercised so great an influence in matters pharmaceutical.

Gifted by nature with superior qualifications, with a laudable ambition and an upright character, with keen perception and good judgment, by a determined will and self-application and study, he steadily advanced through all the stages of a pharmacist's career from apprentice boy to the leadership in his profession. Well deserved were all the honors that were accorded to him both at home and abroad.

As a pharmacist, as a teacher and as an author, his efforts were continuously directed toward the advancement of his chosen calling. As a teacher he was preëminent, gaining not only the attention to studies but, by his genial personality, likewise, the esteem and affection of his students. By his moral as well as technical instruction, he inculcated deeply in the minds of thousands of pharmacy students the ethics of the profession and a realization of the duties and responsibilities of its followers. These impressions through their example and life will continue an ever-broadening influence. His text-books are the accepted authorities for the teaching of pharmacy and will perpetuate his work and usefulness.

As chairman of the Committee of Revision of the United States Pharmacopoeia he demonstrated to the best advantage one of his greatest characteristics, namely, his ability as a leader and harmonizer. The problems associated with the revision of the Pharmacopoeia were numerous, and trying was the position of the chairman. It was greatly to his credit that satisfactory conclusions were reached in practically every matter and to him must be given due share of credit for the notable advances that have been made in the

two revisions that appeared under his chairmanship. Truly, he has left a monument in the services rendered to his fellow-men.

To this noble spirit who by Divine command has completed his earthly labor and who in the zenith of his power has passed on to eternity, we acknowledge our indebtedness as individuals and as a world benefactor. We will ever honor and cherish his memory and revere his example.

FREDERICK J. WULLING.

I first met Professor Remington in 1885 at the New York College of Pharmacy in its old building on East 23rd Street near Third Avenue on the occasion of one of his frequent visits to Prof. P. W. Pedford, whose lecture assistant I was at the time. The occasion is still very clear in my mind and I well remember the genial and cordial fraternal greeting and advice he gave me at the time. Shortly before, I had come into possession of his "Practice of Pharmacy" and in its study had acquired a profound regard for the author, marveling, in my youthful enthusiasm, at the learning of a man who could write so voluminous and comprehensive a work. To meet so distinguished and able an author and teacher was to me at that time and would be to-day a distinct honor. That the professor was so genial and approachable a man came to me as a most pleasant surprise. I have realized since that one of his chief charms lay in his friendly and sincere interest in the struggling student. He saw in every student the potential qualities of a leader in pharmacy. He told me frequently that he regarded it a privilege to be a teacher of young men and women for he regarded them with himself as co-trustees of the profession he loved so well. His popularity was due more largely to the esteem in which students held him than to any other one factor, not excluding his important work in the revisions and development of the Pharmacopoeia.

During my thirty-two years of co-work with him in the cause of better pharmacy, the sincerity of our friendship grew constantly and that despite the fact that for the past twenty-five years we differed materially on the questions of higher academic and professional requirements for professional pharmacy. The professor could never quite agree with my convictions that it is the duty of pharmacists in high positions to use their influence and power to the utmost degree to advance educational standards to a point

commensurate with the value and dignity inherent in so responsible a calling and service as pharmacy. I feel that his unquestioned and profound affirmative influence on pharmacy could have been even greater had he shared these convictions. But American pharmacy and its posterity will ever feel grateful for his very large share in its uplift and development. His departure from this mundane life leaves a distinct void. His many friends have suffered a great personal loss and pharmacy at large an irreparable one. His place and influence in American pharmacy is assured for all time and as the years will lend perspective to his life and work posterity will appreciate him even more greatly than his contemporaries did.

JOHN G. GODDING.

The passing away of Prof. Joseph P. Remington removes from the American Pharmaceutical Association one of its widely known members. His ability as a teacher, author and collaborator on the United States Pharmacopoeia made him one of the best known in American pharmacy.

The completion of the U. S. P. IX of which he was chairman of the Revision Committee, to quote his words, "The best Pharmacopoeia in the world," was the rounding out of an active life devoted to pharmacy. It was the writer's privilege to meet the professor at the annual meetings of A. Ph. A. and enjoy his companionship traveling in the many varied trips to the Association conventions. Thus passeth another friend.

J. W. ENGLAND.

The outstanding features of Prof. Remington's personality were, it seems to me, three in number—his unusual ability, his unusual force of character and his unusual courage.

His ability was inherited and acquired. He had a keenly retentive memory, and a fine, discriminating judgment in appreciating the relative values of facts. He was exceedingly painstaking in his consideration of details. He had a deep knowledge of the science of his profession coupled with rare executive capacity, an unusual combination of scientist and executive; and he knew, as no other, the possibilities and limitations of every active research worker in American pharmacy. He had practical experience in all the branches of pharmaceutical practice—the retail, wholesale and manufacturing, and acquired thereby unusual breadth of view.

His force of character was unusual. Strong and positive in his opinions, he was not hasty in forming them, and was tolerant of the opinions of others, and exceedingly patient. His anxiety was to be right in his decisions and to "play fair" with his opponents. He believed that might may win for the moment, but that right, eternal right, which is only another name for Truth, triumphs through the centuries. He never grew "stale." He always kept young by associating with young people.

He had unusual courage. At a meeting of the Board of Trustees of the Philadelphia College of Pharmacy held last spring, I asked Prof. Remington as to his physical condition and expressed my sympathy. He replied "I am near the end of my life!" He said this calmly and with a smile. He was "At the End of the Trail" as exemplified by the wonderful status of that title at the San Francisco Exposition typifying the final extinction of the Red Man—the Indian on a pony, both "all-in," utterly exhausted, incapable of going further, at the brink of a precipice overlooking a dark valley. And the point is, he spoke of his "passing" without a trace of fear—with a smile on his lips and immortality in his eyes. He was unabashed and unafraid of Death, ready to go down into the Dark Valley and face his Maker! This was courage, real courage, unusual courage. And such a courage he exhibited time and time again in the crises of his life.

C. A. MAYO.

The death of Professor Joseph Price Remington removes the most prominent figure from the field of American pharmacy. Others have won reputation for themselves by good work in some one particular phase of pharmacy, but no one name in pharmacy is so well known in America or in the English-speaking world as a whole as that of Professor Remington. Indeed his name is known not only in the English-speaking world, but throughout the civilized world as a leader in pharmacy. His death will bring grief to thousands of friends in Europe as well as in America. He leaves behind him a monument to his skill as an editor and his knowledge of pharmacy in his "Practice of Pharmacy," the sixth edition of which made its appearance almost coincident with his death, and in the ninth revision of the Pharmacopoeia, the labor on which was probably indirectly responsible for his illness. But above all he leaves in the

hearts of his friends in pharmacy, and their name is legion, grief which time can not assuage, and a profound sorrow at the loss of a man of such wide knowledge, great skill, sound judgment, deft diplomacy and lofty ideals. As a teacher he was an inspiration, as an editor and a coördinator of the work of others, he was a master; as a director in association affairs, he was the essence of diplomatic tact and an able and a wise stabilizer; as a man he was pure in mind and had a positive genius for friendship binding his friends to him by countless evidences of considerate kindness. Pharmacy and pharmacists lose much by his death.

H. W. WILEY.

I have known Doctor Remington intimately for over a third of a century. I have been professionally in touch with him constantly during the ninth revision of the U. S. Pharmacopoeia. His death, therefore, to me is both a personal and professional loss.

I think few will deny Professor Remington's hegemony in pharmacy in the United States, and we may well claim it also in the pharmacy of the world. His was a life of industry. He never flinched by reason of the tasks imposed upon him. He was a glutton for work. The extent of his knowledge outside of his chosen profession was phenomenal. As a teacher he had few equals. He was a voluminous author. He received all the honors which American pharmacy has to offer. He bore them with becoming simplicity. He was never dogmatic or imperious, but always diplomatic and tractable. If Louis the Fourteenth could say "*L'Etat c'est moy*," with equal justice we can say "*La Pharmacopoeia c'est lui*."

As a friend he was incomparable. His hearty laugh gladdened every social function which he honored with his presence. As an after dinner speaker, he was always excellent, pertinent and concise. In his public addresses he was enlightening, entertaining and didactic. Doctor Remington lived the allotted term of life. He was three score and eleven at his death. It may not be true that the good die young, but it is true that the good die young no matter how long they live. Doctor Remington died young. He died as he had lived, true to the highest ideals of manhood.

S. SOLIS COHEN.

It is hard, while our loss is recent and our grief acute, to pen a just estimate of Joseph Remington. The love and veneration in

which he was held by the many thousands of his students, the sincere affection that was joined with the respect and admiration of his colleagues in pharmacy and in medicine, the universal esteem of the community, testify to the high character and the noble qualities of the man.

The value of his scientific and pedagogic work can only be appreciated by those who knew what pharmacy and pharmaceutical teaching were when he began his career as a teacher and can contrast these with the heights to which they have now attained and the upward path opening before them. To this great advance, Professor Remington contributed in no small measure; and many of those most active and efficient in the work have been inspired by his word, taught by his example, and encouraged by his sympathetic recognition and assistance.

His work on the *Pharmacopoeia*, and especially the Ninth Revision, speaks for itself. Of this last book, it is not too much to say that but for the tact, the patience, the wisdom, the broad knowledge, and the sincerity of Joseph Remington, it might have "died aborning," and although it is not in all respects the book he wished it to be, yet he succeeded in carrying it far toward his ideal. To those who know its value and all that it stands for in scientific pharmacy and practical medicine, it is no unenviable monument to the great man whom we were privileged to call friend, and whom we sincerely mourn.

FREDERICK B. POWER.

It is my sad privilege to record in this place a brief but heartfelt personal tribute to the memory of the late Professor Remington. It is difficult to realize that he has passed from us, and that his genial and kindly presence will no longer be seen among men.

Among the professional friends of Professor Remington, there are probably few now living who can look back upon a longer acquaintanceship with him than the writer of these lines, for it had extended over a period of nearly half a century. It was in the spring of 1872, while engaged in the pharmacy of the late Prof. Edward Parrish, at Eighth and Arch Streets, Philadelphia, that I first met Mr. Remington, who was then in the service of Messrs. Powers and Weightman of that city, and, it may be noted incidentally, it was in the same year that I became a member of the American Pharmaceutical Association. At that time the instruction in the Philadelphia

College of Pharmacy was restricted to evening lectures during a period of about five months, from October to March, and Mr. Remington was then a lecture assistant to Professor Parrish, but he also conducted an evening class in pharmacy during the summer months, of which I was a member, and I still cherish a happy recollection of all the associations connected with those early days. On account of the sudden death of Professor Parrish in the summer of 1872, Professor William Procter, Jr., who had previously retired from active service in the college, was called to take his place, but Mr. Remington still retained the position of lecture assistant, and, in the demise of Professor Procter, at the close of the lecture session in 1874, was elected to the professorship of pharmacy, the duties of which he so long and faithfully fulfilled. Many changes have naturally taken place during this long interval of years, and but few now remain of the group of worthy men who in my youthful days were the recognized leaders in American pharmacy.

Within the past two decades it was my privilege to meet Professor Remington on several varied and happy occasions, such as the meeting of the International Pharmaceutical Congress held at Brussels in 1897, and at the opening of the session of the School of Pharmacy of the Pharmaceutical Society of Great Britain, in London, in 1913. On the latter occasion, he was accompanied by his friend, Professor Julius A. Koch, and his almost youthful buoyancy of spirit, which was so marked a characteristic of his nature, was observed then to be still retained. My last meeting with the departed friend was in the closing days of December 1914, when I enjoyed the hospitality of his home in Philadelphia.

It would seem needless to remark how greatly Professor Remington will be missed, not only at the college with which he had so long been connected, but in all pharmaceutical circles throughout the land, and the news of his departure from this life will have been received by the almost countless number of friends and former students with a deep sense of personal loss.

WILBUR L. SCOVILLE.

It is very difficult to speak in any adequate manner of Professor Remington. His loss is personal, professional and international. Great numbers of us will not try to decide which loss is the greater. As a personal friend he was big enough for all lovers of pharmacy.

Not merely his own students and associates, but every advocate of the higher in pharmacy found in him an inspiration and also a human personality that attracted. His personal charm was a rare quality, and a large factor in his influence.

Professionally he was the diplomat of pharmacy. His tact, judgment and ideals enabled him to accomplish much for the advancement of professional pharmacy. He was in touch both with the commercial and the professional phases. He was shrewd in his judgments and loyal to ideals. His insistence on a recognition of commercial demands upon pharmacy is a factor that may appear of more importance in the future than it has in the past. Here he exercised an influence on the pharmacy schools which some have deplored and some have praised. Perhaps neither extreme is best, but if the mean is to be attained—and is the wiser part—both sides need their advocates, and there have been few strong educators who could keep a hold on the commercial as well as the purely professional phases of pharmacy.

As dean of the Philadelphia College of Pharmacy, as president and a long-time leader of the American Pharmaceutical Association, as chairman of the U. S. P. Revision Committee, and as delegate to numerous other societies, both here and abroad, he was the most diplomatic representative of pharmacy. Space forbids the relating of interesting illustrations of his sagacious meeting of difficulties. Doubtless our literature will show many of them in future reminiscences. He was usually ready, he knew how to use humor, he was astute in attacks and discreet in doubtful conditions, a real diplomat.

He is lost to the present, but not to the past or to the future. He moulded pharmacy during his life, and his influence will continue into the future. He is gone, but not lost.

L. E. SAYRE.

It is impossible, for one who has felt himself, from his college days, Professor Remington's very close friend and associate, to put into word his innermost thoughts concerning him. We studied together and our college interests were the same. Since 1885 I have been rather far removed from personal contact and, for this reason I think, I have appreciated him—at this distance—more than his contemporaries at home. There was something truly great in Professor Remington; he had a brilliant mind and it was truly sound, embracing equally

great and small things. I often wondered, when I had the pleasure of meeting him with his associates at the annual pharmaceutical conventions, whether these familiar associates appreciated his greatness as much as I. Egotistical as it may seem, now that he is gone, I can not help but feel that I knew *his greatness best*, partly because of the conditions mentioned.

H. V. ARNY.

Among the many tributes now being laid at the bier of Professor Remington, I desire to add a tribute of gratitude. Few men did more for me than did my great teacher, who did much to change the callow youth into a thinker. How we boys of thirty years ago revelled in the delightful lectures of Professor Remington, who illumined every necessary fact with a merry jest, a clever phrase or a bit of homely philosophy. How we admired Remington the man; the kindly one who was always ready with words of encouragement.

And so it has been ever since. Always courteous, always ready to serve his "boys" scattered throughout this great Republic, he drew to himself an admiring following, the like of which is scarce likely to be found again in American pharmacy.

And so in these hours when we feel most keenly his loss, we can at least be thankful for one thing. Each of us who loved him can say "I am rich in having known him."

OTTO RAUBENHEIMER.

During the International Congress of Applied Chemistry, held in New York City in September 1912, at which Professor Remington was chairman and the writer secretary of the Section on Pharmaceutical Chemistry, I had the good fortune of becoming intimately acquainted with the "Great-Master" of Pharmacy in the United States. Not only did I get thoroughly impressed, but also convinced of his wide knowledge, his lofty ideals, his true love for pharmacy, his unselfishness and his noble character. These properties were greatly admired by all who came in touch with him.

The pharmaceutical as well as the medical profession will be forever thankful to Remington for the splendid manner in which he, as chairman, carried on the revision of the U. S. P. IX. He deserves special credit for harmonizing the frequently conflicting views of the two professions. Truly his wish, which he expressed in the U. S. P. convention in Wash-

ington in 1910, was fulfilled, to make this work "the peer of all Pharmacopoeias."

Remington was the foremost figure in American pharmacy. His fame was not only local, but national, in fact, international. Although he departed, three monuments will remain which will forever remind the pharmaceutical, chemical and medical professions, as well as the Government officials, of Remington, namely, the U. S. P. IX, his "Practice of Pharmacy" and the U. S. Dispensatory.

Let us hope that the name "Remington" will be an everlasting inspiration to the pharmaceutical profession!

SEWARD W. WILLIAMS.

The great loss pharmacy has suffered in the passing on of Professor Remington falls as a personal bereavement on each of us who were privileged to know him well. Way back in our early pharmaceutical training, and ever since, Remington and Pharmacy have been as nearly synonymous as man and profession could be.

He will live in fond recollection as long as memory lasts. He will live in the great books which we regard as the "Scriptures" of pharmacy. He will live in our lives, which should be lengthened by his precept and example; for was there ever a man who had better solved the problem of balancing work and relaxation? But perfect as his balancing of work and play seemed to those of us who enjoyed his genial humor and good fellowship, as on long trips to A. Ph. A. conventions, he carried too heavy a load; for the profession— for us.

His three score years and ten were crowded with a century of service. He has paid "the last full measure of devotion." Words fail to express our sorrow, our admiration, our gratitude.

JOHN F. HANCOCK.

Professor Remington and I were close friends since 1876 and this friendship continued to the close of his life. I first met him in Richmond, in 1873, at the meeting of the American Pharmaceutical Association. Three years later I met him at the World's Fair in Philadelphia, and we were much together at that time and our close friendship possibly dates from that period. I confided in his judgment. He had a rounded, genial disposition and was companionable. He is a great loss to pharmacy and the Association, but he will live in the memory of those who survive him

and will continue to serve as a beacon light to those who enter pharmacy.

E. FULLERTON COOK.

Those of us who were close to the home life of Prof. Remington have known for months that he was critically ill, yet, when the reality of his death came upon us, the shock was no less than to the many friends who then learned for the first time of his illness.

This was probably due to that quality which has been a dominant factor in his career, namely, his unswerving faith that victory must come and his unwillingness to accept or acknowledge defeat, no matter how dark the outlook and he never gave up hope of regaining his health. This strong will carried him through the last year of hard work on book revision, kept him at work on the manuscripts for months after he took to his bed, and perhaps kept him here to fulfill his ambition to see and hold a copy of the new "Remington" and to know that the Dispensatory was on the press.

But as many will write of his scientific achievements and of those splendid qualities of friendship, leadership and teaching ability evidenced throughout his many years of active service in the profession he loved, I shall confine these few words of tribute to those more intimate and personal qualities which it was my good fortune to know through years of friendly relations, almost as intimate as those of father and son.

One of the outstanding facts and influences in his life has been a deep religious conviction and a faith in the guidance of the Divine Spirit. Many problems, personal and business, were settled only after leaving them, as he would say, for "the Voice to show the way." This custom made his decisions preëminently just and usually right and probably explains the reason for that confidence in his judgment shared almost universally by his colleagues.

His interest in the little church at Longport, where he gave so many years of loyal service in every capacity, even to that of lay-reader on occasion, his work for young men as Bible Class leader, head of the Brotherhood and as vestryman at Holy Trinity, Philadelphia, and his ever-present sense of responsibility for the students' moral welfare, are but other evidences of the spiritual side of his life.

Another quality which made an impression upon those close to him was the desire to be fair and entirely above reproach in all of his dealings with associates, and especially in the responsible offices to which he was chosen.

In pharmacopoeial work he tried always to give every member the fullest opportunity to place his views before the Committee, and, on numerous occasions reopened questions when some member expressed dissatisfaction or desired to present a new argument. The purpose was always to arrive at the right solution.

His interest in text and reference books which used pharmacopoeial facts, often placed him in an embarrassing position, since it might be thought that he had taken advantage of the opportunity to obtain information in advance, for his personal benefit. His stand on this question was fixed and definite although it meant a financial loss, but he felt that the honorable fulfilment of his duty to the Pharmacopoeia required his undivided attention until its problems were settled and the manuscript and proof reading entirely out of his hands. Then, and then only, would he take up the revision of his own books and the time elapsing between the appearance of the U. S. P. and the publication of the other books, about two years, in both the Eighth and Ninth Revisions, bear evidence to this policy.

His sense of humor and story-telling ability was one of the charms of his companionship, and yet here was brought out a fine quality of mind. His stories were always clean and they never carried a sting or hurt. He detested the "practical joker" and had no sympathy with the man who retailed immoral stories.

While the passing of this brilliant life has left a vacancy hard to fill, the one thing he has tried to do has been to instill his own faith in the future of pharmacy in the minds and hearts of many whom he was privileged to know and he had faith to believe that the cause he loved would "carry on" and thus, his greatest work as an inspirational teacher, be accomplished.

JULIUS A. KOCH.

Professor Remington was indeed a lovable, whole-souled man, always enthusiastically on the lookout for some means of advancing his chosen profession. His enthusiasm was the constant source of inspiration to those with whom he was in contact.

Ever keenly alive to what was going on around him he made a most delightful traveling companion and my close association with him for two months in the fall of 1913, on our trip to Europe to attend the Eleventh International Pharmaceutical Congress at the Hague, will always be to me the source of most delightful memories.

H. M. WHELPLEY.

In these stirring times of intense mental strain we are prepared for startling news. The announcement of the death of Joseph Price Remington is startling, even though not unexpected. It is startling because it causes us to realize how brief is the notice as we approach the passing of one who has been foremost as a representative of American pharmacy for more than a generation. It is startling because it brings home to us what can be accomplished by a single individual who industriously makes use of natural ability. It is startling because we see how quietly great changes take place and the work in any particular line of human activity goes on with little interruption. It would be useless to try to review the work of such a man in a brief paragraph. I must, however, point out that what man has done, man may do and the field is before thousands of young men in pharmacy today who have the life and work of Remington given them as an incentive.

J. W. STURMER.

American pharmacy has produced its fair quota of eminent men—scientists, teachers, writers, men of affairs; but the name which will stand out in bold relief through the years to come, is the name of the distinguished pharmacy teacher who so recently laid aside the crayon and the pointer of the class room, and folded his hands in rest—Professor Joseph Price Remington.

His life spans the epoch of transformation during which the old-time apothecary passed into history, and modern pharmacy in its various branches came into being; and during all these eventful years Professor Remington was a power which made a lasting impression upon American pharmacy.

Nature had endowed him splendidly: a commanding presence, a clear, pleasing voice, cordiality of manner, good nature, and a smile which was contagious—in short a magnetic personality. In his addresses he coupled logical exposition with humor and wit, and on occasion thrilled his hearers with fiery bursts of impassioned oratory. Naturally, he was a leader. Naturally, in the class room, he was a stimulating force—a catalytic agent who succeeded in energizing his students to study and to work. And throughout this broad land there are thousands of former students of this extraordinary teacher doing worth-while work—compounding, manufacturing, testing, inventing, writing, teaching—who

trace their inspiration to his lectures. The service which Huxley performed for biology, and Tyndal for physical science, Professor Remington rendered to pharmaceutical science; he popularized it, gave it human interest, gave it life.

But it is not my purpose to marshal in review his many achievements. It is but my humble desire to pay a tribute to a man who was great—and whose fame rests upon his service to pharmacy. As long as illness and pain is the common portion of the sons of men, there will be work for the makers of medicines; and therefore the name of Professor Joseph Price Remington, the great pharmacy teacher, will endure.

Some men attain to eminence, and are admired. Others, not so generously endowed with those attributes which make great accomplishments possible, are lovable because of their warm sympathies and their kindness of heart. Professor Remington was both admired and loved. And his many, many dear friends are sad at heart, and feel that their personal loss is great. They will not only perpetuate his name, but will cherish in loving remembrance his charming personality.

A. R. L. DOHME.

Pharmacy has suffered great losses during the past year. Many of her greatest lights have gone out. Many a familiar face that was greeted so gladly and cordially by us at our annual meetings will not answer the roll-call this year. The Grim Reaper has cut a wide swath in the field of pharmacy's choicest plants. Prominent and last among those who have passed to the great beyond has been that great disciple of Procter and Parrish upon whom both these founders of American pharmacy concluded to lay their mantle of leaders when they passed away—Joseph Price Remington. They judged wisely when they handed him the torch of American pharmacy and chose him as the leader to keep it lighted and carry it on down the avenue of time along the pages of history. The torch was not very large nor was it burning very brightly when it was transmitted into the hands of Remington in the seventies. He was a born leader however, a born organizer and an indefatigable

worker, and on January 1, 1918, when he passed it on after more than forty years of stewardship, it had grown in size and its light was burning more brilliantly than ever before in its life's history. Upon whose shoulders he has put his mantle and into whose hands he has passed the torch is as yet mystery, but will become evident before many years have mapped their course.

Professor Remington's life-work was pharmacy and the Pharmacopocia, and pharmacy and the Pharmacopoeia owe him a great debt of gratitude for that great work. I will always remember Prof. Remington by what was to my mind his predominating trait—his geniality. No matter what the provocation or occasion, his greeting and his state of mind were always genial to a degree, and in consequence he counted among men a host of friends all of whom will mourn his loss as will pharmacy.

CHARLES H. LAWALL.

When the historian of the future comes to sum up the pharmaceutical progress of the 19th century and the beginning of the 20th, no name will stand out more clearly as an exponent of progress in its broadest sense than that of Joseph Price Remington, who for fifty years has been identified, not only with Philadelphia pharmacy and American pharmacy, but with the pharmacy of the entire civilized world.

He had been honored by foreign associations to a greater degree than any other American pharmacist, yet he never lost his interest in the little every-day problems of his chosen profession.

Proud as he was of his lineage he never obtruded the fact nor gave evidence of the snobishness often found in the near-great. He was an inspiration and an encouragement to thousands of students who listened with appreciative interest to his lectures. His insight was keen and his judgment phenomenal in matters of great or little moment.

It is too soon to place a correct estimate of value upon his services to his profession, but to those who were close enough to know him well, his true worth will be ever heralded and the purity and sincerity of his life and motives made public.

SOCIETIES AND COLLEGES.

PHARMACY REPRESENTATION IN
BUREAU OF CHEMISTRY AND
INTERNAL REVENUE DEPART-
MENT.

At the last quarterly meeting of the Executive Board of the American Druggists' Fire Insurance Company, Dr. J. H. Beal presented the following timely resolutions, that should receive the endorsement and support of all organizations of the drug trade:

RESOLUTIONS.

WHEREAS, It does not appear that at the present time there are experienced and practically trained representatives of the drug manufacturing and selling industries connected with the U. S. Bureau of Chemistry or with the U. S. Bureau of Internal Revenue, both of which bureaus are charged with the interpretation and administration of laws applying to the manufacturing and selling of drugs and medicinal products; and

WHEREAS, The just and equitable interpretation and application of such laws frequently involves the consideration of technical questions which can be properly answered only by those who have had technical training and practical experience in the manufacturing and selling of drugs and medicinal products; therefore be it

Resolved, That we recommend that the various associations and societies representing the several divisions of the drug trade bring the above statements of fact to the attention of the proper authorities at Washington and urge upon them the appointment in the Bureau of Chemistry and in the Bureau of Internal Revenue of one or more representatives familiar by practical experience with the manufacturing and handling of drugs and medicinal products and of the material used therein.

AMERICAN METRIC ASSOCIATION.

The second meeting of the American Metric Association was held in Pittsburgh in conjunction with the meeting of the American Association for the Advancement of Science on December 28 and 29, 1917.

The sessions on the afternoon of the 28th and the morning of the 29th were held in conjunction with the Section on Social and Economic Science of the A. A. A. S. and at these sittings papers on standardization were read by J. W. McEachren, of the Crane Company,

Chicago, and by F. O. Wells, of the Greenfield Tap & Die Co., Greenfield, Mass. In his paper, Mr. Wells pointed out that he employed 1700 hands and that he calculated that he would save \$100,000 by the introduction of the metric system. Other papers were read by W. C. Wells, of the Pan-American Union, who discussed measures of volume in metric and other measurements, and by H. T. Wade, who pointed out the importance of the metric system as a means of international standardization.

The session held on the afternoon of the 29th was presided over by Dr. John H. Brashhear, of Pittsburgh, and was devoted to reports from President George F. Kunz, Secretary Howard Richards, Jr., and Treasurer A. P. Williams, showing the healthy condition of the association. Fred R. Drake read the report of the executive committee and outlined the activities of the Association in the way of publicity and of coöperation with other national bodies. Dr. H. D. Hubbard, of the Bureau of Standards, gave an interesting address in which he pointed out some of the fallacies of anti-metric arguments.

In the evening was held a metric dinner with a menu based on war-time conditions, the gramme calories of each viand being expressed in units. At the close of the meal impromptu addresses were made, followed by an election of officers, resulting as follows: *President*, G. F. Kunz, of New York; *Vice-Presidents*, William Jay Schieffelin, of New York, E. P. Albrecht, of Philadelphia, and H. V. Army, of New York; *Secretary*, Howard Richards, Jr., of New York; *Treasurer*, A. P. Williams, of New York.

NATIONAL PHARMACEUTICAL SERVICE ASSOCIATION.

Out of respect to the memory of Prof. Joseph P. Remington, who died January 1st, no meeting of the National Pharmaceutical Service Association was held during January.

Much has been accomplished by the Association for the support of the Edmonds Bill in the past seven months of its existence. Starting with a membership of twenty-seven, the roll of the Association has grown to seven hundred, and a large number of applications are now on hand. Monthly meetings have been held on the second Monday or Tuesday of every month since June 1917, and among the speakers at these meetings were Congress-

man George W. Edmonds, who introduced H. R. 5531 into the House, Dr. H. P. Hynson, of Baltimore, Mr. C. A. Mayo, of New York, Mr. Samuel C. Henry, now of Chicago, and Doctors J. Madison Taylor, F. E. Stewart, and John R. Minchart, of Philadelphia, and Mr. George M. Beringer, of Camden. Some of the papers presented by these speakers have been issued in pamphlet form, and distributed to the members and to the pharmaceutical and medical press.

Shortly before the Edmonds Bill was introduced, a committee of the Association, consisting of Messrs. Geo. M. Beringer, J. W. England, E. G. Eberle, and S. L. Hilton called upon Surgeon-General Gorgas of the United States Army to urge the formation of a Pharmaceutical Corps.

This committee was well received, and four medical officers were detailed by the Surgeon-General to hear their case. At the conclusion of the Conference, the Committee was invited to present to the Surgeon-General a brief summing up the arguments which had been advanced in favor of the creation of a Pharmaceutical Corps in the Army. This was done, and the brief has been published in a number of pharmaceutical journals, thus being given wide publicity.

The only source of income of the Association thus far, with the exception of one or two donations, has been the membership fees, which amount to \$1.00 for each member. The money thus collected has been used in carrying on an active propaganda in favor of the Edmonds Bill, and for increasing the membership of the Association. It is felt that the influence of this Association will be directly proportionate to the size of the membership.

It has not been the policy of the National Pharmaceutical Service Association to interfere in any way with the working of any other national, state, or local association. Since its organization, the central theme has been coöperation. It is a very difficult matter to educate and energize the 100,000 or more pharmacists in the United States to the point where they will take it upon themselves to write their Congressmen, urging the passage of the Edmonds Bill, and to enlist the support of laymen, physicians, and other professional men in behalf of recognition for pharmacy in the Army. However, this is the task which the National Pharmaceutical Service Association has imposed upon itself, and with the help of other associations, as

well as individuals, the task can be accomplished. Literature has been sent to every member of the American Pharmaceutical Association, to every member of the Pennsylvania and New Jersey State Associations, and, through the good offices of Secretary Edwin L. Newcomb, of the Minnesota State Association, propagandic material and membership application blanks have been sent to the pharmacists of Wisconsin, Minnesota, Iowa, North Dakota, South Dakota and Montana. Letters have also been sent to the secretary of every state pharmaceutical association, informing him of the work being done, and inviting coöperation as well as offering assistance for supporting the Edmonds Bill.

The pharmaceutical journals have given freely of their space to this movement, and through this publicity a great deal in the way of personal activity on the part of individual pharmacists has resulted.

It is planned by the House Committee on Military Affairs to hold a hearing on this bill in the near future at Washington, and as soon as Congressman Edmonds has made the necessary arrangements for a hearing, the various associations will be notified, and it is to be hoped that representatives will be sent to Washington to argue in favor of this measure. The passage of this bill would be the biggest thing that has been accomplished for professional pharmacy in many years, and it is essential that the highest type of representatives of the body pharmaceutic be sent to the meeting. Doubtless a conference of the delegates will be held at Washington before the meeting, and spokesmen will be selected. Everyone, however, can contribute arguments in favor of the bill, and lend encouragement to the speakers, and impress the Committee on Military Affairs by his presence.

The National Pharmaceutical Service Association invites pharmaceutical bodies to coöperate in this movement, and to join as individuals so that the funds may be made available for continuing the needed propaganda. Individual pharmacists can accomplish much by speaking to the newspaper men in their home cities, who will doubtless be glad to give the matter editorial notice. Information for newspapers can be had from the secretary on request. Every pharmacist in the United States has a distinct duty to perform in connection with this work:

1. He should write his U. S. Representatives and Senators, asking for their vote for the bill.

2. He should send a telegram to the Committee on Military Affairs, stating that it is to the best interests of men in the service to have the Edmonds Bill passed.

3. He should acquaint all his friends in civil life with the fact that pharmacy in the Army is not being practiced by pharmacists, and that the safeguards which are thrown around the dispensing and compounding of drugs in their own state are absolutely ignored in the army camp.

It is to be hoped that all of the pharmaceutical interests will combine to send this very necessary measure "over the top." If this is accomplished, there will be enough credit to go around. The thing to do now is to keep everlastingly at it, and achieve success.

The coöperation of every pharmacist is necessary.

ROBERT P. FISCHELIS,

Secretary.

OHIO BRANCH NATIONAL PHARMACEUTICAL SERVICE ASSOCIATION.

The National Coöperative Organization to secure the establishment of a Pharmaceutical Corps in the U. S. Army has done effective work, and we are advised that this active body, of which Dr. Frank Cain, of Cincinnati, is secretary, contemplates organizing permanently as the Ohio Branch of the N. P. S. A. This body has sent out much literature and secured recognition from the press. Among the active members are: Dr. John H. Landis, Health Officer of Cincinnati; Dr. E. O. Smith, President Ohio State Medical Association; C. H. Thiesing, President Ohio Pharmaceutical Association; H. J. Dusterberg, President Ohio Valley Druggists' Association; Theodore D. Wetterstroem, Secretary Ohio Pharmaceutical Association; Louis Werner, President Cincinnati Branch A. Ph. A., and numerous others both among pharmacists and physicians; in fact Cincinnati and Ohio generally are deeply interested and intensively active.

This organization shows what can be accomplished, that physicians and surgeons are interested, and coöperative action is possible and helpful. The importance of other states taking similar action is stressed. There must be a central body to prepare literature and direct, so that there may be concerted effort. It should be stated that good work is being done in Alabama, California, Texas, Missouri, Illinois, Iowa, Minnesota, New York, New Jersey, Kentucky, Georgia, Maryland, Pennsylvania, Maine, Kansas, etc.; in fact, there seems to be a general awakening

of an enthusiasm to stand up for right and justice and to win.

Letters sent to Congressmen should have the personal appeal; a short, personal letter to the point is better than a lengthy document. The brief which is supplied by the National Pharmaceutical Service Association contains the essential points for argument. The assistance of laymen, parents of the soldiers, will be helpful; they expect pharmaceutical service at home, and they will demand it for their sons when our efforts are explained to them. France recognized the value of a pharmaceutical corps, why should not the United States?

THE AMERICAN FAIRCHILD SCHOLARSHIP.

AWARDED TO DANIEL KOLLEN.

The first award of the American Fairchild Scholarship is made to Daniel Kollen of New York City. The American Fairchild scholar is of Russian birth, having been born in the city of Kishinef, State of Bessarabia, Russia, August 27, 1898. The father was a maker of wooden models for shoes; he died when Daniel was about eight years of age. The young man attended a Russian grammar school for about three and a half years and until April 1, 1910, when the family emigrated to the United States, arriving in New York City April 19.



DANIEL KOLLEN

Two weeks after arrival, Kollen entered Manhattan Public School No. 64, where June 29, 1913, the young man received his diploma. The spare hours and vacations were spent in the employ of his uncle at S. H. Ager's Pharmacy, 145 Avenue C, New York City, where he has ever since, up to the present, given his time between studies. September 9, 1913, Daniel entered DeWitt Clinton High School, New York City, from which he gradu-

ated June 30, 1917. His recommendations from the teachers and preceptor are excellent in every way. He matriculated at the Brooklyn College of Pharmacy and is a member of the Junior Class.

NEW YORK DRUG TRADE SECTION OF THE BOARD OF TRADE AND TRANSPORTATION.

The annual meeting of the Drug Trade Section of the New York Board of Trade and Transportation was held on January 8 at the Drug and Chemical Club. The following officers were chosen for the new year: *Chairman*, Howell Foster, of Schieffelin & Co.; *Vice-Chairman*, Turner F. Currens, of the Norwich Pharmacal Co.; *Treasurer*, William A. Hamann, of Roessler & Hasslacher Chemical Co.; *Secretary*, William F. McConnell; *To Represent Drug Trade Section as Director in New York Board of Trade and Transportation*, Burton T. Bush, of Antoine Chiris Co.; *Executive Committee*, Frederick E. Watermeyer, of Fritzsche Bros.; John T. Barry, of D. D. Williamson & Co.; Charles C. Bruen, of Bruen, Ritchey & Co.; Herbert D. Robbins, of McKesson & Robbins, Inc.; Frank C. Starr, of Sharp & Dohme.

Mr. Bush the retiring chairman made a report showing that the Section had patriotically cooperated with President Wilson.

THE PHILADELPHIA DRUG EXCHANGE.

The following officers were elected at the fifty-seventh annual meeting of the Philadelphia Drug Exchange: *President*, Harry B. French, of Smith, Kline & French Co.; *Vice-President*, Harry K. Mulford, of H. K. Mulford Company; *Secretary*, Joseph W. England; *Treasurer*, Anthony M. Hance; *Directors*, Charles E. Hires, of Charles E. Hires Co.; A. Robinson Melhvaine, of Melhvaine Bros.; Dr. Adolph W. Miller, of Aschenbach & Miller; Adam Pfromm, of Adam Pfromm & Co.; Blair Ferguson, of Ferguson Bros.; Clayton F. Shoemaker, of Shoemaker & Busch; Richard M. Shoemaker, of Robt. Shoemaker & Co.; and Walter V. Smith, of Valentine H. Smith & Co. Clayton F. Shoemaker presented the annual report in which he reviewed trade conditions in general and in greater detail those of the drug trade and the problems confronting the interests concerned. Relative to the establishment of a pharmaceutical corps in the U. S. Army he said in part:

"The men at the front are entitled to the

very best pharmaceutical service this country can give them and it should be fully as good as that afforded them in civil life. As a matter of public safety no one is permitted to dispense drugs in any State who is not properly and fully qualified and yet in our Army the pharmacist has absolutely no standing as such. A bill to remedy this has been introduced in the Congress by Hon. George W. Edmonds of this city, H. R. 5531. It is a most worthy measure and should be earnestly supported."

The annual dinner was given January 29 at the Bellevue-Stratford. The menu was of the usual excellence and the decorations artistic. President Harry B. French presided as toastmaster and his remarks and introductions of the speakers added zest to the occasion. Chairman Walter V. Smith provided an excellent program and received the congratulations of the guests.

The speakers of the evening were Emil P. Albrecht, President of the Philadelphia Bourse; Daniel Joseph McCarthy, M.D., Professor of Medical Jurisprudence, U. of Pa.; Congressman George W. Edmonds and Captain David Fallon, Oxford and Bucks Light Infantry, Australian and British Forces. The latter gave thrilling experiences of the war and gained the applause of the guests. Dr. McCarthy spoke of conditions in Russia, from where he had recently returned, having been engaged in a special mission. He presented views that enlightened the hearers on the present situation in that country and stressed the importance of the revolution in the future history of the world. Mr. Albrecht spoke of the history of the Bourse and the close and cooperative relation of the Drug Exchange. Congressman Edmonds spoke of the great need for a pharmaceutical corps and enlisted all drug interests to unite in a concerted effort to pass the bill which he had introduced in Congress.

SEVENTH ANNUAL MEETING OF THE AMERICAN DRUG MANUFACTURERS' ASSOCIATION.

The American Drug Manufacturers' Association convened in annual session January 28 at the Waldorf-Astoria, New York City. The first day was devoted to a meeting of several of the Sections, namely, the Committee on Standards and Deterioration, of which Dr. A. R. L. Dohme is chairman, investigating aconite, while Dr. Turner of Eli Lilly & Co. served as chairman of the committee in-

vestigating cannabis indica. The Biological Section also held sessions.

Practically all the national associations concerned with the drug interests were represented and their delegates received and accorded the privileges of the floor. Secretary W. J. Woodruff, in his report, spoke of the effect of the prohibition movement on the drug trade. He stated that bills in the legislatures of various states had placed serious and uncalled-for restrictions on the drug trade and that they were contributing largely to an increased cost of manufacturing.

President C. J. Lynn advocated centralization of supervision over industries and advised that the only policy should be to stand behind the Government in everything. He advocated an interest in the promotion of the sale of Thrift Stamps. He commended the coöperation of the Association with the various departments of the Government and asserted that drugs and medicines were being supplied with more regularity and less interference than other supplies. He praised the organizations of the medical departments of the Army and Navy.

Harry B. Mason read a paper by Frank G. Ryan, chairman of the Committee on Social Insurance, in which attention was called to the present socialistic tendencies. Henry C. Lovis reported on the work of the Committee on Industrial Preparedness, and the following committees also presented their reports: Dr. A. R. L. Dohme, as chairman of the Committee on Standards and Deterioration; Dr. Fred B. Kilmer, as chairman of the Tariff Committee; Charles J. Lynn, as chairman of the Executive Committee; and R. C. Stofer, as chairman of the Committee on Employment Problems.

Several minor changes in the Harrison narcotic law were recommended but it was the general belief of the delegates that the present law had proved a success. Resolutions were adopted by the convention favoring the repeal of the Sherman anti-trust law and pointing out that the Federal Trade Commission now fills the need for which the Sherman law was created, as in that way combinations which may be construed a violation of anti-trust laws could be prevented, whereas the Sherman law is usually not invoked until after such a combination has been formed. It was voted that any attempts of physicians to try to regulate pharmacy laws and of pharmacists to regulate medical laws should be discouraged as harmful and creating discord.

It was recommended that packages of drugs supplied the Government should be specially marked. It was brought out that many orders for drugs and medicines received for the Army and Navy are being held up because there is no standard for the basic drugs of these preparations. The Association will ask for the temporary use of substitutes which have been proved effective until a normal supply of the regular drugs can be obtained. The Association favored the payment of the federal war tax in installments at stated intervals instead of paying the tax in a lump sum.

It was decided to hold the convention next year in March, the exact date to be fixed by the Executive Committee. All the officers of the past year were reelected, and are as follows: *President*, Charles J. Lynn, of Indianapolis; *Vice-President*, R. C. Stofer, Norwich, N. Y.; *Secretary*, W. J. Woodruff, Detroit; *Treasurer*, Franklin Black, of New York City; *Executive Committee*, Dr. A. R. L. Dohme, of Baltimore, B. L. Murray, of New York, and Charles M. Woodruff, of Detroit.

The members assembled each day at luncheons and the meeting was closed with a banquet, January 30, at which President Charles J. Lynn presided as toastmaster, and speeches were made by Abram Elkus, the United States Ambassador to Turkey, Theodore E. Burton, former United States Senator, and the Rt. Rev. Charles S. Burch, Bishop Suffragan of the Diocese of New York.

IOWA COLLEGE OF PHARMACY.

Iowa College of Pharmacy has quite a list of alumni in the service of their country. Hon. J. M. Lindly is a member of Henry County Council of National Defense; W. R. Jennings and D. T. Stanton and W. A. Dodd are in France. R. G. Odle, R. E. Stewart, R. S. Potter, V. H. Tyler, M. F. Kyhl, C. W. Wilsey, J. P. Sweeney, S. M. Hadnott, and I. W. Fields are located at Camp Dodge, Des Moines. P. J. Hanzlik is with the National Medical Research Council. J. L. Kubicek is in the California Masonic Hospital Corps; W. E. Palmer, C. C. Powers, E. J. Meister and Fred Jean are in the Navy. H. W. Preuss, E. D. Brown, J. C. Liek, Charles Carter, R. E. Humphrey, E. L. Bright, I. V. Cozine, B. B. Hunter, P. K. Huston, V. M. Stephenson, W. R. Bryant, T. H. Gillespie, R. E. Barnes, H. J. Tierney, T. H. Beekman and E. T. Bjornstad are doing service or preparing for service in other localities.

COLLEGE OF PHARMACY, UNIVERSITY OF MICHIGAN

The Detroit Branch of the A. Ph. A. has accepted an invitation to join with the Prescott Club at Ann Arbor for their February meeting.

At the last meeting of the Prescott Club the following papers were much enjoyed:

"Patents," by Miss Irma Neuman.

"Vitamines," by J. A. Wyman.

"The Retail Drug Store," by H. B. McWilliams.

Professor Henry Kraemer attended the annual meetings of the Botanical Society of America at Pittsburgh, Pa., where he delivered a paper, "Some Experiments on the Modification of Color in Plants." Professor Kraemer was also honored by being made sub-editor of the Section of Pharmacognosy for the *Botanical Abstracts Journal* which is to be published by that Society.

PHILADELPHIA COLLEGE OF PHARMACY.

One of the stars on the service flag of the P. C. P. will be a gold star in honor of the memory of the late Kenneth Hay, of Dubois, Pennsylvania, a recent student of the Pharmacy course, who gave his life in the fight for freedom "Somewhere in France."

Over a hundred and fifty gift boxes were mailed to the students and recent graduates of the College who are fighting in either branch of service. Many boxes went to France and others to training camps all over the country. They were the gifts of the students attending college, the Faculty of the Institution and prominent alumni.

As the old year silently stole away and the new year was ushered in, there passed from the eyes of men in pharmacy, but not from their memories, the greatest figure in American pharmacy, the revered Dean of the College.

Reminiscent to Dean Remington is the story he often told of Ben. Ben is a colored man with a good heart and respectful manners, and he was much liked by the Dean. Said the Dean to him one day, "Ben, you've heard me lecture for years and you've been around this place long enough to be a druggist. Why don't you hang out your shingle?" After a moment's reflection, Ben answered,

"I'll hang the shingle out, Dean, but I'll have to word it 'All prescriptions filled at the owner's risk.'"

Professor Remington's entire scientific library has been bequeathed to Professor Charles H. LaWall and Professor E. Fullerton Cook, to be divided equally between them. For the present the library will be placed in the Pharmacy Department of the College as a reference library for the students in that department and will be catalogued as an adjunct library of the College.

George M. Beringer, Chairman of the Board of Trustees of the College, and Editor of the *American Journal of Pharmacy*, is confined to his home, having suffered a broken ankle, the result of a fall. He is improving as rapidly as can be expected.

MASSACHUSETTS COLLEGE OF PHARMACY.

The walls and roof of the new building are partially completed and the structure now shows the stately and impressive character of its exterior. All glass has been set in the windows, temporary doors are in place and the heating plant is installed and in operation while the interior is being finished. It is slow work to finish such an elaborate building as this at any time, but it is especially slow just now when materials and labor are so scarce and high, so that it will be several months before the interior will be finished and the equipment installed. The work has advanced far enough, however, to begin to show that the interior will in all ways equal the high character of the exterior. Mr. George Robert White, who is presenting the building to us, has kept in close touch with the architects as the work has progressed and the building already shows his unusually fine taste and judgment in architectural matters. Unless prevented by some circumstances not now foreseen, the College expects to occupy the new building before the opening of the next session.

Instructor George L. Burroughs has been granted a leave of absence for the period of the war for service in France with the Red Cross Society. Mr. Burroughs has the title of Inspector, which we understand is equivalent in rank to that of a captain in the army. Vincent J. Fitz-Simon, '17, has been appointed as a substitute for Mr. Burroughs.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESSES SINCE DEC. 18, 1917.

DILL, CHAS. T.,
From 167 W. 143rd St., New York, N. Y.

To 204 W. 141st St., New York, N. Y.

WITTKAMP, C. T.,
From Montgomery & Brewster Ave., Cincinnati, Ohio.

To 25 Erkenbrecher Ave., Cincinnati, Ohio.

HEUSCHLING, ALLEN J.,
From U. S. S. Dixie, cr. Postmaster, New York, N. Y.

To U. S. Embassy, London, Eng., cr. Navy Dept.

ALACÁN, SYLVIA,
From 4528 Chestnut St., Philadelphia, Pa.

To 17 No. 21, Vedado, Cuba.

HIGHT, M. S.,
From 32 Adams Ave., W., Detroit, Mich.
To 1038 8th Ave., Hickory, No. Car.

McCARTNEY, F. L.,
From 154 W. 18th St., New York, N. Y.
To 203 W. 81st St., New York, N. Y.

BASE, DANIEL,
From 329 N. Schroeder St., Baltimore, Md.

To 3905 Alto Ave., Windsor Hills, Baltimore, Md.

JURADO, BOLIVAR,
From National Institute, Panama City, Rep. of Panama.
To P. O. Box 80, David, Chiriquio, Rep. of Panama.

DUMÉZ, A. G.,
From 135 W. Gilman St., Madison, Wis.
To 25 & 3rd St., Hygienic Laboratory, Washington, D. C.

BROWN, ARTHUR F.,
From 219 N. Senate Ave., cr. Swan Myers Co., Indianapolis, Ind.
To 1445 N. 29th St., Philadelphia, Pa.

DEAN, J. A.,
From 1809 Wallace St., Philadelphia, Pa.
To 5420 Baltimore Ave., Philadelphia, Pa.

RITTER, WALTER A.,
From 629 Peosta Ave., Helena, Mont.
To 273 17th St., Milwaukee, Wis.

DECEASED SINCE DEC. 18, 1917.

FISCHNAR, J. F.
Chicago, Ill.

HOLZHAUER, CHARLES,
Newark, N. J.

McFADDEN, E. A.,
Hackensack, N. J.

REMINGTON, J. P.,
Philadelphia, Pa.

WELDON, GEO.,
Paris, Idaho.

A WORD FROM THE TREASURER.

The A. Ph. A. fiscal year runs even with the calendar year. The annual payment for 1918 was due January 1. The bills were mailed to the members December 17, 1917. It is gratifying to state that at the present writing, January 5, the treasurer has received 725 payments for 1918. A prompt response from the other members will save the association the expense of mailing a second bill.

New Year's greetings to all from

HENRY M. WHELPLEY,
2342 Albion Place, St. Louis, Mo.

BOOK NOTICES AND REVIEWS.

HOW MUCH KNOWLEDGE OF DRUGS AS MEDICINES SHOULD THE PHARMACIST POSSESS TO PRACTICE PHARMACY PROPERLY?

There is considerable difference of opinion in relation to the question, how much knowledge of drugs as medicines the pharmacist should possess to practice pharmacy properly. One side takes the ground that no person is thoroughly competent to practice any medical or surgical art without a medical education, and the other side insists that a specialized training in any one art is all that is necessary to render the practitioner expert.

Those who hold the latter view in regard to pharmacy believe that the interests of the public are best served by pharmacists who know practically nothing about the action of drugs as therapeutic agents, and whose knowledge is limited to the mere fact that certain drugs are cathartics, others diuretics, etc., and who are acquainted with the average doses prescribed for adults and children.

Those who hold to the doctrine that a more general medical education and knowledge concerning the action of drugs on healthy and diseased tissues are necessary to practice pharmacy properly, call attention to the fact that "in the medical schools, over 200 hours are devoted to teaching students knowledge of the medical actions, uses and doses of drugs; and of the symptoms and treatment of poisoning. And, furthermore, the medical student, in order that he may understand these subjects thoroughly, must have pursued studies in anatomy, physiology and pathology for nearly two years; and before being able to apply the knowledge, the student is required to spend another two years or more in the study of disease." This long study, they point out, "is considered by all those capable of judging as absolutely essential to the safety of the public; therefore the pharmacist who, without this knowledge, undertakes to treat the sick by prescribing or recommending medicines over the counter, assumes grave moral responsibilities, and, sooner or later, may have occasion to face serious legal complications."

There are others who hold that pharmacy is a trade or commercial business, and in conducting it the pharmacist and manufacturer

should be guided by the same commercial uses pertaining to merchants and manufacturers in other lines. They believe in using advertising to create a demand for medicines and justify themselves in publishing exaggerated claims for therapeutic value by saying, "A certain amount of exaggeration in advertising is considered legitimate in all trades."

Into the midst of this conflict of opinions Dr. Torald Sollmann has injected a treatise on "The Actions of Drugs"¹ consisting of a course of elementary lectures for students of of pharmacy.

Dr. Sollmann is professor of pharmacology and materia medica in the School of Medicine of Western Reserve University, Cleveland, and a member of the Council on Pharmacy and Chemistry of the American Medical Association. The author states in his preface that his course of lectures was planned "with the intention of giving to the young pharmacist a concise survey of the modern conceptions and knowledge of drug action. It was aimed to make this course "sound," but elementary; demanding but little previous knowledge of physiology or anatomy; and not pretending to fit the pharmacist for the treatment of disease. In his introductory chapter he says: "It would be out of the question to give to students of pharmacy a course that would enable them to treat any kind of sickness. Indeed, it would be far better for the public, and even for the pharmacist himself, that the pharmacist should be entirely ignorant of medical actions, than that he should become possessed of the dangerous conceit that he is competent to advise or prescribe any treatment."

It is evident that the prescribing druggist and commercial merchant and manufacturer of medicines will find but little comfort in this statement of the object of Dr. Sollmann's book, though both may find much of interest in its pages; but the professional pharmacist, and the "tradesman" in pharmacy who really strives to give the public a square deal, will find the book of great practical value. The author states this in well-chosen language. He says:

"Nevertheless, to the sensible and tactful pharmacist, some knowledge of these matters is very useful, and indeed necessary. As a

¹ "The Action of Drugs: A Course of Elementary Lectures for Students of Pharmacy" By Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica in the School of Medicine of Western Reserve University, Cleveland. Philadelphia and London, W. B. Saunders Company, 1917. 213 pages. Price, \$1.50.

tradesman, the public expects the pharmacist to be familiar with the uses to which his wares are commonly put, and with the manner of their use. As a professional man, he can coöperate with the prescribing physician much better, if he has an intelligent understanding of the broad principles which guide treatment, of the objects which are to be accomplished and of the means that are utilized. The pharmacist himself will be protected against many blunders in the exercise of his higher professional function, the compounding of prescriptions. He will be able to protect the public against the errors of others, as well as his own. He may, by the exercise of some tact, put the physician under lasting obligations. In cases of poisoning, he has often the opportunity to institute preliminary treatment which may decide the patient's life."

We predict a large sale for Dr. Sollmann's little treatise. The material is well classified and arranged; the text is written in a style both interesting and concise; the type is large and legible; the reading matter is frequently broken into short paragraphs with suggestive side heads, and the information is useful without burdening the reader with unnecessary data.

F. E. STEWART.

Elementary Lessons in Latin.—By Otto A. Wall, M.D., Ph.G., Professor of Materia Medica, Pharmacognosy and Botany in the St. Louis College of Pharmacy, second edition, 148 pages, cloth, \$1.50 net. St. Louis, C. V. Mosby Company, 1917.

The object of this book, according to the author, is to "enable the student to read the Latin edition of the German Pharmacopoeia," which he says is "as much Latin as is necessary for the pharmaceutical or medical student." The book is based upon Professor Kuehner's "*Lateinische Vorschule*" and shows throughout the German influence. The continental method of pronunciation is used.

The book is divided into two parts: Part I, consisting of eighty pages, is devoted to grammar, and Part II, containing sixty-eight pages, to vocabulary and reading matter. Grammar, by itself, is dry reading and it would seem that for a beginner it would be preferable to introduce the grammar gradually with the reading matter. The grammar might well be reduced also if the desire is to give only minimum amount of Latin necessary. The main object in using a pharmaceutical Latin text, I take it, is to give the student a technical vocabulary. This part seems compre-

hensive and very technical, the reading exercises suffer in consequence, necessarily, perhaps, in interest and continuity. For a beginner the book would be easier to use if a complete alphabetical vocabulary had been provided. For a book of its purpose, it might well be shorter and for a book of its length it might better be less technical. The type and paper used are good, the subject matter is easily read, a matter of importance in a text.

E. D.

The Practice of Pharmacy—A Treatise on the Modes of Making and Dispensing Official, Unofficial, and Extemporaneous Preparations, with Descriptions of Medicinal Substances, Their Properties, Uses, and Doses, Intended as a Hand-Book for Pharmacists and Physicians and a Text-Book for Students. By Joseph P. Remington, Ph.M., Phar.D., F. C. S., Chairman of the Committee of Revision of the United States Pharmacopoeial Convention; Dean of the Philadelphia College of Pharmacy, etc., Assisted by E. Fullerton Cook, P.D., Associate Professor of Operative Pharmacy in the Philadelphia College of Pharmacy; Member of the Committee of Revision of the National Formulary. Buckram; 6 by 9 inches; pages 1990; \$8.00. Philadelphia: J. B. Lippincott Company, 1917.

Remington's "Practice of Pharmacy" has been the reference and text-book of American pharmacists for more than thirty years and the despair as well as the hope of thousands of students of pharmacy. This, the sixth edition, is a worthy successor of its predecessors and it is safe to say that it will maintain the position that this work has held as the dean of pharmaceutical text-books and one of the most valuable contributions to pharmaceutical literature.

This edition has been enlarged by about four hundred pages making in the single book a volume of over nineteen hundred pages. For convenience the present edition may be secured in two volumes. This review, covering Vol. II, is chiefly one of comparisons, to point out a few of the many excellent features added to and the improvements made in the text of this honored and worthy work. (See also p. 766, August 1917.)

The general plan of the book is the same as in previous editions. Part III treats of the Inorganic Substances; Part IV of Organic Substances, beginning with the Cellulose Group, the Alkaloids, and Products from Animal Substances with a final chapter on

Pharmaceutical Testing; Part V, Magistral Pharmacy; and Part VI a Formulary of Unofficial Preparations and Glossary of Uncommon Names.

The drugs and preparations of the National Formulary IV have been incorporated in the text following the pharmacopoeial preparations of like classification and are discussed in the same manner as the U. S. P. subjects. This places at the disposal of the pharmacist the working formulas of both U. S. P. and N. F. in one book and adds greatly to the value of the work.

A review of Volume II shows thorough and careful revision of text as well as the addition of much new material. The introductions to several chapters have been rewritten. In Chapter LI on Sugars and Saccharine Substances a classification of sugars is given, based on that of Tollens. The Alcoholometric Table and Temperature Corrections of the U. S. P. replace Abridged Squibb Table in Chapter LII. Chapter LV on Volatile Oils classifies the volatile oils according to Wallach and their constituents into seven chemical groups. The alkaloids in Chapter LX are classified according to their chemical derivation. Bacterial Vaccines and Bacterins are briefly outlined in Chapter LXI following the article on *Virus Vaccinicum*. This consists of a number of definitions of common terms coming under this heading such as antibodies, opsonins, serobacterins, etc., together with a list of the most important stock vaccines. To Chapter LXIV on Prescriptions has been added the N. A. R. D. Prescription Pricing Schedule. Incompatibilities in Prescriptions, Chapter LXVI, has been improved by the addition of a large list of Incompatibilities of the More Important Newer Remedies. Incompatibilities of aspirin, adrenalin, ichthyol, theobromine, sodio-salicylate, veronal, etc., are explained and will serve as a valuable guide to the dispenser. Chapter LXVII, Solid Extemporaneous Preparations, has been enlarged and new illustrations added. The portion devoted to tablet manufacture has been largely rewritten and the process more fully discussed. Paragraphs describing granulation, diluents, disintegrators, excipients, lubricants and constructing a formula give to the reader a more comprehensive knowledge of this important branch of pharmaceutical manufacturing. A new chapter, LXIX, deals

with sterilization and ampuls. The uses of sterilization as applied by pharmacists are enumerated together with brief discussions of common methods whereby sterilization may be accomplished. Ampuls as a means of dispensing sterile solutions and suspensions and methods for filling are described. The student is urged, however, to secure laboratory training in general, bacteriological methods before undertaking work along this line. Part VI, Formulary of Unofficial Preparations, includes a number of new formulas, Paraffin Dressing for Burns, Carrel-Dakin Solution and others.

The charts of U. S. P. and N. F. substances following the various parts have been given the same careful attention in revision as the text. The lists of Unofficial Products that follow the several chapters have had a number of deletions and many additions. Unofficial Products from Coal Tar show addition of such important items as novocaine, novaspirin, salvarsan, etc.

This work offers only such criticisms as are debatable. As a contribution of pharmacy its value has been greatly enhanced by additions and corrections that broaden the scope of the work to such an extent that the intention of the author to make this a comprehensive hand-book as well as a text-book are more fully realized.

C. A. DUNCAN.

PUBLICATIONS RECEIVED.

Proceedings of the Pennsylvania Pharmaceutical Association.—At its fortieth annual meeting, with the constitution, by-laws, roll of members, and new State pharmacy and narcotic laws. Also an abstract of the proceedings and roll of members of the Traveling Men's Auxiliary. Held at Hotel Schenley, Pittsburgh, Pa., June 10, 20, 21, 1917.

Proceedings of the New Jersey Pharmaceutical Association.—At its forty-seventh annual meeting. With constitution and by-laws, roll of members, the pharmacy act of New Jersey, list of registered pharmacists, the Traveling Men's Auxiliary and the Women's Auxiliary. Held at Lake Hopatcong, New Jersey, June 12, 13, 14 and 15, 1917.

Proceedings of the California Pharmaceutical Association.—At its eleventh annual meeting. Held at Hotel Oakland, Oakland, Cal., May 23, 24 and 25, 1917.

JOSE GUILLERMO DIAZ, Ph.G., M.D.

HAVANA, CUBA

Translator, and Editor of the Spanish edition of the United States Pharmacopoeia



DR. JOSE G. DIAZ

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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NO. 3

JOSÉ GUILLERMO DIAZ.

Dr. José Guillermo Diaz was born in Havana, Cuba, December 12, 1863. His early education was received in the high school course of the *Instituto de la Habana*, from which he graduated in 1879. In the same year he matriculated at the School of Pharmacy of the University of Havana, and graduated in 1883; in 1887 he received the Doctor's degree from the same institution.

In 1889 he was appointed assistant professor in the School of Pharmacy and continued to hold this position until 1896, when, on account of the war with Spain, he removed to New York City to help in the cause of independence. After the war Prof. Diaz returned to Havana and was again appointed assistant professor. In 1900 he was elected professor of Practical Pharmacy, which chair he still holds.

Dr. Diaz is the owner of a retail drug store in Havana. This store was established by his father, Dr. José Diaz, in 1842, in the same building now occupied by his son, at Monte 412.

In 1910 Dr. Diaz was present as member of the U. S. Pharmacopoeial Convention, representing the University of Havana. He translated the U. S. P. VIII into Spanish and also the last revision. In 1915 Dr. Diaz was elected a member of the Academy of Medical Sciences of Havana. He has attended several of the annual conventions of the American Pharmaceutical Association.

J. P. A.

PHARMACISTS SHOULD HOLD POSITIONS IN SEVERAL GOVERNMENT DEPARTMENTS.

PHARMACISTS throughout the country, assisted to some extent by medical men, are making a strong effort to have pharmacy recognized by the Government in the creation of a pharmaceutical corps in the U. S. Army. By granting such recognition the United States will not be establishing a precedent nor take the lead among nations in such establishment, for France many years ago provided a pharmaceutical corps as a branch of its military organization and, since the world conflict, has added greatly to its duties and numerical strength, emphasizing the words of the senator from Rhone when he said "that the members of the French Pharmaceutical Corps have in their humble sphere contributed most eminent service to save the country." If then France has found that the services of pharmacists are essential to the men of their armies, the experience should be accepted as of value to our soldiers.

There is no reason why medical men in the Army should be deprived of qualified pharmaceutical service when this is deemed essential in civil practice, nor is there reason why efficient pharmaceutical service, which is provided to the men in civil life, under legal regulations, should be withdrawn from them when they enter upon duties which will most certainly call for medical and surgical attention. If the measures now before Congress are defective in any way or seriously conflict with the present military organization, then the subject should be investigated and the inclusion of a pharmaceutical corps made possible. The time for action is now. What French pharmacists have done can be done by American pharmacists, for the high position of American pharmacy has been and is recognized in Europe. The *Pharmaceutical Journal* (England) of February 9, 1918, says in an editorial:

"The United States has been uncommonly fortunate in the possession of a remarkable array of eminent pharmacists who have rendered signal service to the science of pharmacy and to the cause of pharmaceutical education and progress."

But this is incidental at this time for this writing, as there is no desire to interpose a new subject while the more important one for the present is still in the shaping. However, if the Government once gives recognition to pharmacy and realizes the possibilities of its service, then the further necessity will be recognized, that there are departments in which the services of pharmacists will be helpful not only to the Government but to industries which contribute to the country's prosperity and which the Government desires to coöperate with. Recently, in preparing the war tax measure, and more specifically that portion which concerns the tax on alcohol, it became very evident that the framers of these regulations

were unacquainted with retail and manufacturing pharmacy, and resulted in unintentional exactions that could have been avoided if a pharmacist was attached to the Revenue Department. It also stands to reason that in the Bureau of Chemistry more trained pharmacists should be employed. It need not be emphasized that the Government not only desires to be fair and shape the regulations in such a way that they will protect the public but is also equally desirous of having them practicable and adaptable to the industries concerned. The sincerity of pharmacists is clearly evidenced in the preparation of standards in the United States Pharmacopoeia and National Formulary; but aside from substances coming within the scope of these standards there are products which differ and still there is commercial need for them. Herein trained pharmacists can be of great service, and therefore the resolutions offered recently by Dr. J. H. Beal and printed on p. 217 of the February JOURNAL, will bear reproduction. The matter is deserving of attention, not only by pharmaceutical organizations, but by the Government as well; for President Wilson has repeatedly referred to the importance of Government coöperation with the industries and reversely. The resolution follows:

"WHEREAS, It does not appear that at the present time there are experienced and practically trained representatives of the drug manufacturing and selling industries connected with the U. S. Bureau of Chemistry or with the U. S. Bureau of Internal Revenue, both of which bureaus are charged with the interpretation and administration of laws applying to the manufacturing and selling of drugs and medicinal products; and

"WHEREAS, The just and equitable interpretation and application of such laws frequently involves the consideration of technical questions which can be properly answered only by those who have had technical training and practical experience in the manufacturing and selling of drugs and medicinal products; therefore be it

"*Resolved*, That we recommend that the various associations and societies representing the several divisions of the drug trade bring the above statements of facts to the attention of the proper authorities at Washington and urge upon them the appointment in the Bureau of Chemistry and in the Bureau of Internal Revenue of one or more representatives familiar by practical experience with the manufacturing and handling of drugs and medicinal products and of the material used therein."

Another instance that might be cited showing that the departments of the Government need the advice of pharmacists is indicated in *Document 564* of the War Department, from the office of the Quartermaster General. The *Manual* contains definitions, which, on the whole, are sufficiently clear and comprehensive, but such statements as the following also occur and could readily have been correctly given if there had been consultation and coöperation.

"*Aniline*. Dye used in highly colored confectionery. A product of petroleum. The red shades are harmless, but the chemicals used in making blue, green and other colors are injurious."

"Ferment. A substance capable of producing yeast fermentation."

"Glucose. A cheap sugar that will not easily crystallize or a cheap syrup that will not crystallize, very much like 'Silver Drip,' but much thicker. Glucose is often made by treating cornmeal with sulphuric acid. It is very wholesome."

E. G. E.

THE SIGNIFICANCE OF MILITARY RANK.

THE following epigram is on the letter head of the New York State Department of Health: "Public health is purchasable. Within natural limitations every community can determine its own death rate." The statement is both true and of great significance and speaks much for the progress of medicine, and pharmacists are glad to accord to the practitioners of medicine and surgery every credit that is justly due them, in fact the achievements of medicine and of surgery have perhaps not generally received due consideration. Every now and then some one attempts to express the value of "preventive" medicine in dollars. The present war is again testifying to the wonderful progress medicine and surgery have made, to the real heroism and genuine patriotism of surgeons and physicians. There are no dangers they do not risk, without concern for their own health and comfort. The conferring of military rank to medical men in the Army and Navy service is a just and rightful recognition, and places them in position to do the most efficient work. Not that they could not and would not do equally as good work without such rank, but the opportunities are enhanced by this recognition, the very distinction given them commands the respect and obedience of those whom they serve. In large, and especially military, organizations, rank is essential to efficiency; it establishes a relationship that would not exist without the distinction, and stimulates a desire to advance.

In giving all due credit to the medical men for their achievements, for making valuable suggestions, for their sacrifices in behalf of science and humanity, the fact cannot be ignored that pharmacists have had a part in these accomplishments. It is true, perhaps, that medical men have devised some of the means used in their practice, but, as a rule, they were too busily engaged in their special field of activity to give attention to the preparation of agents they realized the need of. Lister was always ready to give Pasteur credit for his investigations, and Sertürner, Labarraque, Pelletier, Caventon, Gaedeke and the host of others who studied and developed the active constituents of drugs are certainly entitled to recognition as contributors to medical advance, and when modern serum therapy and physiological standardization are considered, American pharmacists, many of them humble retail pharmacists, have contributed their share in investigations and accomplishments. The spirit of the modern world looks toward the application of every scrap of knowledge that can be collected and coördinated, in every

field where opportunity for its application can by any possibility be found. It is not to be expected that military surgeons and physicians should accord pharmacists the consideration they would if a degree of rank was given them. Assign to the most noted scientist the duty of scrubbing floors and other menial labor, and it is only in case of utmost emergency that his views or assistance will be asked in the matter of scientific subjects with which he is thoroughly informed.

England recently has given rank to some pharmacists engaged in France, and a report of a *medical officer* who also refers to the colonial and foreign pharmaceutical corps, in brief, demonstrates the value of commissions to pharmacists. He states:

"The first point that struck me as noteworthy was the complete confidence reposed by the commanding officer and medical officers in the pharmacist and his work; secondly, the frequent consultations as to the preparations to be utilized in the treatment of cases; thirdly, the general elevation of the importance of the pharmaceutical branch of the service; fourthly, the insistence of colonial officers on the imperative necessity for nothing but fully qualified pharmacists being responsible for the dispensaries; and, fifthly, the consternation with which they regard the antiquated pharmaceutical arrangements of the British medical service as compared with the modern and efficient organization of the colonial and foreign arms of this corps. With reference to the first point, it is a fact that in 99 percent of cases an officer has more of the confidence of his commissioned officers and fellow officers than a non-commissioned officer, and in the case of prescribing, as in the second instance, it follows that ultimately more benefit will accrue to the patient. The idea is frequently harbored that because the dispenser is not commissioned his statements are not fully reliable. This is obviously a fallacy; but, at the same time, it must be admitted that commissioned rank increases the standing of a person. Again, with reference to the second point, it is fairly evident that medical officers consider it somewhat beneath their dignity to ask for information on a subject in which they are supposed to be proficient, especially as the information would be given by a non-commissioned officer. The sum and substance of the whole is that where treatment is specialized (*i. e.*, from the casualty clearing station down), the presence of a pharmacist who could be consulted with confidence, would be of a distinct advantage to the patient; and that to insure confidence and coöperation, the granting of commissions to experienced pharmacists is essential."

These very clear and modest statements certainly should appeal to those medical men who are fearful that pharmacists will be given a rank and thereby injure their standing in some unaccountable way. It would be desirable for them to know that those who serve them are qualified to do so intelligently and not to be in doubt as to whether the dispenser has had training or simply has been assigned to dispensing duty because he can read the number on a container, and has no knowledge of drugs whatever. Such a condition is impossible in civil life, why should it obtain in the Army? It stands to reason that there are qualified pharmacists, many are enlisted as privates; it is as reprehensible to waste talent as material things. There is something wrong somewhere; let the situation be cleared up. Within limitations, the U. S. Army can determine its own death rate and pharmaceutical service will have a part. Pharmacy can be ignored, but not without sacrifice of men.

E. G. E.

THE NEED FOR A FEDERATION OF ALL PHARMACEUTICAL ORGANIZATIONS.*

NEVER in the history of American pharmacy has there been greater urgency for a federation of pharmaceutical organizations than at present. Leaders in pharmacy have recognized the need ever since the inception of the American Pharmaceutical Association, but evidently the movement has never been sufficiently energized to bring about the culmination.

The military organization presents in a way distinct and separate branches, but all of them are coördinated so as to utilize the various activities represented for a common purpose. To permit these corps to act independently throughout would thwart their efforts. And so the multiplication of organizations of an industry, unless joined in common purposes, does not permit of the grand efforts, those in which all should be concerned. Let it be admitted that all the national pharmaceutical associations serve those branches which they directly represent, that each of them is essential for carrying out special aims and that these have no interest for the other divisions of the drug industries; it still remains that these sections are related, all are finally dependent upon the distributors; the reverse, of course, applies as well. For example, there has been much said about doing away with the middlemen, but their place has been so firmly fixed that up to the present they are as important a branch as ever and will so continue because their services are necessary. The point then is to unite these links into a strong chain for the purposes in which the aid of all is essential. If this can be properly worked out it will develop that there are many problems, in common, which can be solved and movements that can be carried into more effective execution. Wise executive measures may also reduce the large overhead expense which encumbers most of these organizations. It stands to reason that, if the coöperation of many and their numerical strength can bring about a better recognition of pharmacy, then every division will benefit.

To prevent the coalition of forces, persuading them to remain inactive or work at cross-points, gives strength to the adversary. The reverse then is true that, if there can be unison of action, if the separate branches can be counted on for their support and numerical strength in important projects, there is greater possibility for achieving in them. It would seem to be equally true that if all these separate bodies can be brought into a federation each will benefit in many ways. It is of paramount importance that the local and state associations become attached, for the common interest of an association should represent the interest of the in-

* See address of Ex-President Frederick J. Wulling, September JOURNAL, 1917, p. 778, October number, p. 854, and message of Acting President A. R. L. Dohme, p. 117, February issue, 1918.

dividual member. Each one of the societies referred to seeks to impress the individual that his efforts are enhanced by association work, and if the argument will hold then certainly it is equally applicable, and in a larger degree, that the federation of closely related associations must be productive of increased relative benefits. Such organization will offer greater opportunities for coöperation of the allied interests, for shaping and regulating the drug business in general on a more satisfactory and profitable basis, for making possible more rational legislation, and coördinating the system of teaching with the present-day needs and at the same time developing what is so essential for the progress of pharmacy, namely, research. We need a materia medica that will be broad enough to meet the views of all practitioners of medicine, and that will draw more extensively from our own resources and products of our industries.

Pharmacy is entitled to representation in the departments of the Government, deserves recognition in the military service, but without concerted action and with indifferent support of the medical profession and the laity, the paths that lead to success are not smooth.

The minds of many should be occupied with this question of federating the body-pharmaceutic, and that there must be a way of impressing the importance of pharmacy, that divisionalism has not done so, and that federation may be the solution of the vexing problem. In this proposition the situation of the drug business should be faced, and not the impossible attempted; it is a problem of co-ordination and coöperation; we must realize that the development of the drug industries has been influenced by economic conditions, and these cannot be changed at will, but there is a possibility of having the branches unite in common purposes and systematize these endeavors for the good of all associated organizations.

"To know that which before us lies in daily life is the prime of wisdom."

A committee has recently been appointed to study the possibility and practicability of a federation and outline a plan of procedure and the members of it are now seriously engaged with their assigned duties. This writing is therefore in the interest of the problem to the extent of encouraging all members of the Association to study the subject. The greatest fault of associations is to give approval to many recommendations, resolve and thereafter forget. The proceedings of our Association record many wise suggestions that were enthusiastically received by the members but were never utilized by them. Resolutions should have a deeper significance.

E. G. E.

SCIENTIFIC SECTION

THE DETERIORATION OF "U. S. P." AND "FAT-FREE" TINCTURES OF DIGITALIS.*

BY PAUL S. PITTENGER AND H. K. MULFORD, JR.

Many papers have been published on the subject of digitalis, in which practically all of the authors conclude that the galenical preparations of digitalis deteriorate quite rapidly.

The laboratories connected with the larger pharmaceutical manufacturing houses, although using many different methods of assay, all found that these preparations deteriorated so rapidly that they deemed it necessary to warn their customers of this fact by placing small labels upon the containers reading as follows:

"Owing to the rapid deterioration of preparations of digitalis, they should only be purchased in quantities sufficient to meet immediate demands."

The more ethical manufacturers also state upon the label the date of manufacture in order that the druggist or physician may know the age of the particular preparation he is dispensing or administering.

Dr. George B. Roth, Government Pharmacologist, states in the conclusion of his paper entitled "Digitalis Standardization"[†] "in view of the fact that deterioration of digitalis occurs so rapidly it is advisable that, if such preparations are to be marketed, the date of their manufacture should be stated, so that physicians may know the age of the preparations and may not be misguided into purchasing worthless preparations."

Hatcher,¹ however, in an article entitled "Observations on the Keeping Properties of Digitalis and Some of Its Preparations" gives the results of many tests made upon old samples of the drug, and arrived at the conclusion that preparations of digitalis do not deteriorate. He found that in many cases samples from two to twenty years old were as active, and in some cases more active, than the freshly prepared samples and therefore concluded that digitalis preparations do not deteriorate.

As the investigations of Fränkel,² Edmonds and Hale,³ Hale,⁴ Pittenger,⁵ and others show that the digitalis preparations upon the market vary hundreds of percent, there is every reason to believe that the preparations which showed standard activity after several years may have originally been six or eight times standard strength.

It is the authors opinion that the only way in which any definite information can be obtained as to the rate of deterioration of a particular drug is to prepare

* Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

† Roth, *Hygienic Laboratory Bulletin*, No. 102, 1916.

¹ Hatcher, *Druggists' Circular*, June 1913, page 325.

² Fränkel, *Charité-Ann.*, Berlin, 1881, VI, page 207.

³ Edmonds and Hale, *Hygienic Lab. Bulletin*, No. 48, 1909.

⁴ Hale, *Hygienic Lab. Bull.*, No. 74, 1911.

⁵ Pittenger, Text-Book "Biochemic Drug Assay Methods," 1914, page 6.

a fresh tincture or fluid extract of the same, test it immediately after it is prepared and then retest the *same preparation* at intervals of a few months. In this way absolute scientific information can be obtained.

Roth, in the paper referred to, shows that "fat-free" tinctures of digitalis show a marked deterioration after five to seven months. At several of the medical societies, which the authors have attended during the past year, the remark has been made during the discussion of papers that the so-called "fat-free" or "defatted" tinctures of digitalis deteriorate more rapidly than the U. S. P. tinctures. These remarks, however, were made without the support of experimental data. In order to prove, therefore, whether or not tinctures of digitalis deteriorate, and if so, whether the "fat-free" preparations deteriorate more or less rapidly than the regular U. S. P. tinctures, we carried out the following experiments:

A sample of digitalis drug was obtained from different sources, namely, H. K. Mulford Co., P. E. Anderson, Werner & Gerathy, McKesson & Robbins and the National Aniline & Chemical Company. Each lot of drug was divided into three parts, "A," "B," and "C."

"A" was percolated with fifty percent alcohol and made into the regular U. S. P. VIII tincture.

"B" was percolated with benzine until a small quantity of the percolate evaporated to dryness on a watch crystal left no trace of fat, thus proving that the fat had been entirely removed from the drug. The drug was then spread out on paper until the benzine evaporated. The drug was then moistened, repacked in the percolator, macerated, and percolated with fifty percent alcohol to tincture strength.

"C" was "defatted" the same as given under "B," but was macerated and percolated with eighty percent alcohol instead of fifty percent alcohol.

Each of the fifteen samples were assayed immediately after they were prepared, re-assayed after four or five months had elapsed and again after seven or eight months.

As there is no satisfactory chemical method for assaying digitalis, the above preparations were tested by the Reed and Vanderkleed Guinea-Pig Method, which consists in determining the minimum dose per two hundred and fifty gramme body-weight of animal necessary to cause the death of the animal within twenty-four hours, when the preparation is subcutaneously injected. The standard for tincture of digitalis is 1.0 mil (Cc.) per two hundred and fifty gramme body-weight of animal.

The following tables show the detailed results of these experiments:

| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|-------------------------------------------------------------------------------------------------|---------------------|-----------------------|-----------------|-----------|
| No. 1 A. H. K. M. Co. drug, U. S. P. VIII. Menstruum 50 percent. Date of test, 6-28-16 | 0.4 | 285 | 0.45 | Recovered |
| | 0.6 | 215 | 0.51 | Recovered |
| | 0.6 | 225 | 0.54 | Recovered |
| | 0.7 | 250 | 0.7 | Recovered |
| | 0.8 ¹ | 345 | 1.1 | Recovered |
| | 0.8 ¹ | 260 | 0.83 | Died |
| | 0.8 ¹ | 185 | 0.95 | Died |
| | 0.9 | 250 | 0.9 | Died |
| | 1.0 | 210 | 0.84 | Died |
| | 1.0 | 245 | 0.98 | Died |

¹ M. L. D. = 0.8 = 125.0%.

| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|-------------------------------------------------------------------------------|---------------------|-----------------------|-----------------|-----------|
| No. 1 A. Same drug. Second test. After 5 months. Date of test, 11-29-16 | 1.2 | 310 | 1.48 | Recovered |
| | 1.3 | 350 | 1.82 | Recovered |
| | 1.3 | 385 | 2.0 | Recovered |
| | 1.4 | 390 | 2.18 | Recovered |
| | 1.6 | 435 | 2.78 | Recovered |
| | 1.6 | 335 | 2.14 | Recovered |
| | 1.6 | 350 | 2.24 | Recovered |
| | 1.8 ¹ | 485 | 3.49 | Died |
| | 1.8 ¹ | 340 | 2.44 | Died |
| | 2.0 | 250 | 2.0 | Died |

$$^1 \text{M. L. D.} = 1.8 = 55.5\%$$

| | | | | |
|--------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 1 A. Third test after eight months. Date of test, 2-1-17 | 1.8 | 405 | 2.91 | Recovered |
| | 2.0 | 400 | 3.2 | Recovered |
| | 2.2 | 420 | 3.69 | Recovered |
| | 2.5 | 345 | 3.45 | Recovered |
| | 2.6 | 405 | 4.21 | Recovered |
| | 2.6 | 395 | 4.1 | Recovered |
| | 2.6 | 420 | 4.36 | Recovered |
| | 2.7 ¹ | 410 | 4.42 | Died |
| | 2.7 ¹ | 360 | 3.88 | Died |
| | 2.7 ¹ | 435 | 4.69 | Died |
| | 2.8 | 395 | 4.42 | Died |
| | 2.8 | 425 | 4.76 | Died |
| | 2.8 | 395 | 4.42 | Died |
| | 3.0 | 395 | 4.74 | Died |

$$^1 \text{M. L. D.} = 2.7 = 37.0\%$$

| | | | | |
|------------------------------------------------------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 1 B. Same drug as No. 1 A. "Defatted" U. S. P. VIII. Menstruum, 50 per- cent. Date of test, 6-28-16 | 0.8 | 230 | 0.73 | Recovered |
| | 1.0 | 220 | 0.88 | Recovered |
| | 1.0 | 225 | 0.9 | Recovered |
| | 1.0 | 235 | 0.94 | Recovered |
| | 1.0 | 245 | 1.01 | Died |
| | 1.1 | 245 | 1.07 | Recovered |
| | 1.1 | 280 | 1.23 | Recovered |
| | 1.2 | 190 | 0.91 | Recovered |
| | 1.2 | 325 | 1.6 | Recovered |
| | 1.3 | 270 | 1.4 | Recovered |
| | 1.3 | 225 | 1.17 | Died |
| | 1.4 ¹ | 270 | 1.5 | Died |
| | 1.4 ¹ | 190 | 1.06 | Died |
| | 1.5 | 250 | 1.5 | Died |

$$^1 \text{M. L. D.} = 1.4 = 71.5\%$$

| | | | | |
|--------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 1 B. Second test after 5 months. Date of test, 11-29-16. | 1.2 | 425 | 2.04 | Recovered |
| | 1.4 | 335 | 1.87 | Recovered |
| | 1.4 | 440 | 2.46 | Recovered |
| | 1.6 ¹ | 390 | 2.49 | Died |
| | 1.6 ¹ | 355 | 2.27 | Died |
| | 1.8 | 420 | 3.02 | Died |

$$^1 \text{M. L. D.} = 1.6 = 62.6\%$$

| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|-------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------|-----------------|-----------|
| No. 1 B. Third test after 8 months. Date of test, 2-1-17 | 1.4 | 410 | 2.29 | Recovered |
| | 1.6 | 405 | 2.59 | Recovered |
| | 1.8 | 405 | 2.91 | Recovered |
| | 1.8 | 405 | 2.91 | Recovered |
| | 2.0 | 350 | 2.8 | Recovered |
| | 2.0 | 330 | 2.64 | Recovered |
| | 2.2 | 405 | 3.56 | Recovered |
| | 2.3 | 370 | 3.4 | Recovered |
| | 2.3 | 410 | 3.77 | Recovered |
| | 2.4 ¹ | 305 | 2.92 | Died |
| | 2.4 ¹ | 385 | 3.61 | Died |
| | 2.5 | 405 | 4.05 | Died |
| ¹ M. L. D. = 2.4 = 41.7%. | | | | |
| No. 1 C. Same drug as No. 1 A and No. 1 B. "De- fatted" 80 percent alcohol menstruum. Date of test, 6-28-16 | 0.5 | 225 | 0.45 | Recovered |
| | 0.6 | 250 | 0.6 | Recovered |
| | 0.6 | 240 | 0.57 | Recovered |
| | 0.6 | 270 | 0.64 | Died |
| | 0.7 | 205 | 0.57 | Recovered |
| | 0.7 | 245 | 0.68 | Recovered |
| | 0.8 ¹ | 285 | 0.91 | Died |
| | 0.8 ¹ | 335 | 1.07 | Died |
| | 0.8 ¹ | 205 | 0.65 | Died |
| | 0.0 | 250 | 1.0 | Died |
| ¹ M. L. D. = 0.8 = 125.0%. | | | | |
| No. 1 C. Second test after 5 months. Date of test, 11-29-16 | 0.6 | 390 | 0.93 | Recovered |
| | 0.8 | 370 | 1.18 | Recovered |
| | 0.9 | 420 | 1.51 | Died |
| | 0.9 | 405 | 1.45 | Recovered |
| | 0.9 | 395 | 1.42 | Recovered |
| | 0.9 | 250 | 0.9 | Recovered |
| | 1.0 | 450 | 1.8 | Died |
| | 1.0 | 410 | 1.04 | Recovered |
| | 1.0 | 460 | 1.84 | Recovered |
| | 1.1 | 250 | 1.1 | Recovered |
| | 1.2 ¹ | 375 | 1.8 | Died |
| | 1.2 ¹ | 395 | 1.89 | Died |
| | 1.3 | 500 | 2.6 | Died |
| | 1.3 | 250 | 1.3 | Died |
| ¹ M. L. D. = 1.2 = 83.3%. | | | | |
| No. 1 C. Third test after 8 months. Date of test, 2-1-17 | 1.1 | 400 | 1.76 | Recovered |
| | 1.1 | 370 | 1.62 | Recovered |
| | 1.2 | 400 | 1.92 | Recovered |
| | 1.2 | 370 | 1.77 | Died |
| | 1.2 | 335 | 1.6 | Recovered |
| | 1.3 ¹ | 300 | 1.56 | Died |
| | 1.3 ¹ | 380 | 1.97 | Died |
| | 1.3 ¹ | 360 | 1.87 | Died |
| | 1.4 | 375 | 2.1 | Died |
| | 1.4 | 270 | 1.51 | Died |
| | 1.4 | 355 | 1.98 | Died |
| | 1.5 | 455 | 2.73 | Died |
| | 1.6 | 455 | 2.91 | Died |
| | 1.8 | 415 | 2.98 | Died |
| ¹ M. L. D. = 1.3 = 76.1%. | | | | |

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| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|------------------------------------------------------------------------------------------------------|---------------------|-----------------------|-----------------|-----------|
| No. 2 A. Drug from P. E. Anderson, U. S. P. VIII. Menstruum, 50 percent. First test, 7-6-16 | 0.4 | 235 | 0.37 | Recovered |
| | 0.6 | 195 | 0.47 | Recovered |
| | 0.6 | 295 | 0.7 | Recovered |
| | 0.7 | 250 | 0.7 | Recovered |
| | 0.8 ¹ | 200 | 0.64 | Died |
| | 0.8 ¹ | 185 | 0.59 | Died |
| | 1.0 | 265 | 1.06 | Died |
| | 1.2 | 295 | 1.41 | Died |

$$^1 \text{M. L. D.} = 0.8 = 125\%.$$

| | | | | |
|-------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 2 A. Second test after 4 months. Date of test, 11-29-16 | 0.7 | 325 | 0.91 | Recovered |
| | 0.8 | 440 | 1.4 | Recovered |
| | 1.0 | 435 | 1.74 | Recovered |
| | 1.1 | 295 | 1.29 | Recovered |
| | 1.2 | 380 | 1.82 | Recovered |
| | 1.2 | 375 | 1.8 | Recovered |
| | 1.3 | 325 | 1.67 | Recovered |
| | 1.3 | 425 | 2.21 | Recovered |
| | 1.4 ¹ | 310 | 1.73 | Died |
| | 1.4 ¹ | 450 | 2.52 | Died |

$$^1 \text{M. L. D.} = 1.4 = 71.4\%.$$

| | | | | |
|----------------------------------------------------------------|------------------|-----|------|-----------|
| No. 2 A. Third test after 7 months. Date of test, 2-1-17 | 1.4 | 355 | 1.98 | Recovered |
| | 1.4 | 385 | 2.15 | Recovered |
| | 1.5 | 350 | 2.1 | Died |
| | 1.5 | 305 | 1.83 | Recovered |
| | 1.5 | 355 | 2.13 | Recovered |
| | 1.6 ¹ | 360 | 2.3 | Died |
| | 1.6 ¹ | 325 | 2.08 | Died |
| | 1.6 ¹ | 380 | 2.43 | Died |

$$^1 \text{M. L. D.} = 1.6 = 62.5\%.$$

| | | | | |
|-----------------------------------------------------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 2 B. Same drug as No. 2 A. "Defatted" U. S. P. VIII. Menstruum, 50 per- cent. Date of test, 7-6-16 | 0.8 | 330 | 1.05 | Recovered |
| | 0.8 | 240 | 0.76 | Recovered |
| | 0.9 | 235 | 0.75 | Recovered |
| | 1.0 | 245 | 0.98 | Recovered |
| | 1.0 | 265 | 1.06 | Recovered |
| | 1.0 | 230 | 0.92 | Recovered |
| | 1.0 | 265 | 1.06 | Recovered |
| | 1.1 ¹ | 425 | 1.87 | Died |
| | 1.1 ¹ | 500 | 2.2 | Died |
| | 1.2 | 250 | 1.2 | Died |

$$^1 \text{M. L. D.} = 1.1 = 90.9\%.$$

| | | | | |
|-------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 2 B. Second test after 4 months. Date of test, 11-29-16 | 1.0 | 465 | 1.86 | Recovered |
| | 1.1 | 390 | 1.71 | Recovered |
| | 1.2 | 390 | 1.87 | Recovered |
| | 1.2 | 375 | 1.8 | Recovered |
| | 1.4 ¹ | 365 | 2.04 | Died |
| | 1.4 ¹ | 365 | 2.04 | Died |
| | 1.6 | 395 | 2.52 | Died |
| | 1.6 | 355 | 2.41 | Died |

$$^1 \text{M. L. D.} = 1.4 = 71.4\%.$$

| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|----------------------------------------------------------------------------------------------------------|---------------------|-----------------------|-----------------|-----------|
| No. 2 B. Third test after 7 months. Date of test, 2-1-17 | 1.2 | 435 | 2.08 | Recovered |
| | 1.3 | 335 | 1.76 | Recovered |
| | 1.3 | 250 | 1.3 | Recovered |
| | 1.4 ¹ | 330 | 1.84 | Died |
| | 1.4 ¹ | 255 | 1.42 | Died |
| | 1.4 ¹ | 430 | 2.4 | Died |
| | 1.5 | 420 | 2.52 | Died |
| | 1.5 | 320 | 1.92 | Died |
| | 1.6 | 350 | 2.24 | Died |
| | 1.6 | 450 | 2.88 | Died |
| ¹ M. L. D. = 1.4 = 71.4%. | | | | |
| No. 2 A. "Defatted" 80 per- cent alcohol menstruum. Date of test, 7-6-16 | 0.2 | 220 | 0.176 | Recovered |
| | 0.3 | 260 | 0.31 | Recovered |
| | 0.4 | 185 | 0.29 | Recovered |
| | 0.4 | 260 | 0.41 | Recovered |
| | 0.4 | 215 | 0.34 | Recovered |
| | 0.5 ¹ | 270 | 0.54 | Died |
| | 0.5 ¹ | 310 | 0.62 | Died |
| | 0.6 | 310 | 0.74 | Died |
| | 0.6 | 215 | 0.51 | Died |
| | 0.7 | 250 | 0.7 | Died |
| ¹ M. L. D. = 0.5 = 200%. | | | | |
| No. 2 C. Second test after 4 months. Date of test, 11-29-16 | 0.4 | 365 | 0.58 | Recovered |
| | 0.5 | 485 | 0.97 | Recovered |
| | 0.5 | 385 | 0.77 | Recovered |
| | 0.6 ¹ | 340 | 0.81 | Died |
| | 0.6 | 335 | 0.8 | Recovered |
| | 0.6 ¹ | 415 | 0.99 | Died |
| | 0.6 ¹ | 395 | 0.94 | Died |
| | 0.7 | 250 | 0.7 | Died |
| ¹ M. L. D. = 0.6 = 133%. | | | | |
| No. 2 C. Third test after 7 months. Date of test, 2-1-17 | 0.6 | 390 | 0.93 | Recovered |
| | 0.6 | 395 | 0.94 | Recovered |
| | 0.7 | 500 | 1.4 | Recovered |
| | 0.7 | 400 | 1.12 | Recovered |
| | 0.7 | 305 | 1.13 | Recovered |
| | 0.8 ¹ | 250 | 0.8 | Died |
| | 0.8 ¹ | 450 | 1.44 | Died |
| | 0.8 | 410 | 1.31 | Died |
| | 0.9 | 250 | 0.9 | Died |
| | 0.9 | 500 | 1.8 | Died |
| ¹ M. L. D. = 0.8 = 125%. | | | | |
| No. 3 A. Drug from Werner & Gerathy, U. S. P. VIII. Menstruum, 50 percent. Date of test, 7-6-16 | 1.0 | 305 | 1.22 | Recovered |
| | 1.0 | 305 | 1.22 | Recovered |
| | 1.1 | 235 | 1.03 | Recovered |
| | 1.1 | 250 | 1.1 | Recovered |
| | 1.2 ¹ | 275 | 1.32 | Died |
| | 1.2 ¹ | 335 | 1.6 | Died |
| | 1.2 ¹ | 245 | 1.1 | Died |
| | 1.3 | 250 | 1.3 | Died |
| | 1.3 | 500 | 2.6 | Died |
| | 1.4 | 245 | 1.37 | Died |
| ¹ M. L. D. = 1.2 = 83.3%. | | | | |

| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|-----------------------------------------------------------------------------------------------------------------|---------------------|-----------------------|-----------------|-----------|
| No. 3 A. Second test after 4 months. Date of test, 11-29-16 | 1.2 | 350 | 1.61 | Recovered |
| | 1.4 | 245 | 1.37 | Recovered |
| | 1.4 | 400 | 2.24 | Recovered |
| | 1.6 ¹ | 390 | 2.49 | Died |
| | 1.6 | 245 | 1.56 | Died |
| | 1.7 | 365 | 2.48 | Died |
| ¹ M. L. D. = 1.6 = 62.5%. | | | | |
| No. 3 A. Third test after 7 months. Date of test, 2-1-17 | 1.4 | 345 | 1.93 | Recovered |
| | 1.4 | 405 | 2.26 | Recovered |
| | 1.4 | 305 | 1.7 | Recovered |
| | 1.4 | 335 | 1.87 | Died |
| | 1.5 ¹ | 300 | 1.8 | Died |
| | 1.5 ¹ | 415 | 2.49 | Died |
| | 1.5 ¹ | 345 | 2.07 | Died |
| | 1.6 | 415 | 2.65 | Died |
| | 1.6 | 425 | 2.72 | Died |
| ¹ M. L. D. = 1.5 = 62.0%. | | | | |
| No. 3 B. Same drug as No. 3 A. "Defatted" U. S. P. VIII. Menstruum, 50 per- cent. Date of test, 7-6-16 | 0.6 | 195 | 0.46 | Recovered |
| | 0.6 | 225 | 0.54 | Recovered |
| | 0.8 | 295 | 0.94 | Recovered |
| | 0.8 | 285 | 0.91 | Recovered |
| | 1.0 | 230 | 0.92 | Recovered |
| | 1.2 | 220 | 1.05 | Recovered |
| | 1.4 | 230 | 1.28 | Recovered |
| | 1.4 | 260 | 1.45 | Recovered |
| | 1.5 | 250 | 1.5 | Recovered |
| | 1.6 ¹ | 285 | 2.8 | Died |
| | 1.6 ¹ | 395 | 1.95 | Died |
| | 1.8 | 250 | 1.8 | Died |
| ¹ M. L. D. = 1.6 = 62.5%. | | | | |
| No. 3 B. Second test after 4 months. Date of test, 11-29-16 | 1.4 | 330 | 1.84 | Recovered |
| | 1.4 | 375 | 2.1 | Recovered |
| | 1.6 ¹ | 445 | 2.84 | Died |
| | 1.6 ¹ | 375 | 2.4 | Died |
| | 1.8 | 285 | 2.05 | Died |
| | 1.8 | 360 | 2.59 | Died |
| ¹ M. L. D. = 1.6 = 62.5%. | | | | |
| No. 3 B. Third test after 7 months. Date of test, 2-1-17 | 1.4 | 355 | 1.98 | Recovered |
| | 1.4 | 350 | 1.96 | Recovered |
| | 1.4 | 340 | 1.9 | Recovered |
| | 1.5 | 435 | 2.61 | Recovered |
| | 1.5 | 375 | 2.25 | Died |
| | 1.5 | 345 | 2.07 | Recovered |
| | 1.5 | 250 | 1.5 | Recovered |
| | 1.6 ¹ | 405 | 2.59 | Died |
| | 1.6 ¹ | 390 | 2.49 | Died |
| ¹ M. L. D. = 1.6 = 62.5%. | | | | |

| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|-------------------------------------------------------------------------------------------------------|---------------------|-----------------------|-----------------|-----------|
| No. 3 C. Same drug as No. 3 A. "Defatted" 80 percent alcohol menstruum. Date of test, 7-6-16 | 0.4 | 205 | 0.32 | Recovered |
| | 0.4 | 240 | 0.38 | Recovered |
| | 0.5 | 250 | 0.5 | Recovered |
| | 0.6 ¹ | 180 | 0.43 | Died |
| | 0.6 ¹ | 230 | 0.55 | Died |
| | 0.8 | 290 | 0.92 | Died |

$$^1 \text{M. L. D.} = 0.6 = 166\%.$$

| | | | | |
|-------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 3 C. Second test after 4 months. Date of test, 11-29-16 | 0.6 | 465 | 1.11 | Recovered |
| | 0.6 | 410 | 0.98 | Recovered |
| | 0.8 ¹ | 335 | 1.07 | Died |
| | 0.8 ¹ | 380 | 1.21 | Died |
| | 1.0 | 365 | 1.46 | Died |
| | 1.0 | 410 | 1.64 | Died |

$$^1 \text{M. L. D.} = 0.8 = 150\%.$$

| | | | | |
|----------------------------------------------------------------|------------------|-----|------|-----------|
| No. 3 C. Third test after 7 months. Date of test, 2-1-17 | 0.6 | 385 | 0.92 | Recovered |
| | 0.6 | 395 | 0.94 | Recovered |
| | 0.7 ¹ | 365 | 1.02 | Died |
| | 0.7 | 390 | 1.09 | Recovered |
| | 0.7 ¹ | 420 | 1.17 | Died |
| | 0.7 ¹ | 310 | 0.86 | Died |
| | 0.7 ¹ | 365 | 1.02 | Died |
| | 0.8 | 420 | 1.34 | Died |

$$^1 \text{M. L. D.} = 0.7 = 143\%.$$

| | | | | |
|---------------------------------------------------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 4 A. Drug from McKes- sou & Robbins, U. S. P. VIII. Menstruum, 50 percent. Date of test, 7-13-16 | 0.5 | 290 | 0.58 | Recovered |
| | 0.6 | 205 | 0.49 | Recovered |
| | 0.6 | 190 | 0.45 | Recovered |
| | 0.8 | 230 | 0.73 | Recovered |
| | 1.0 | 285 | 1.14 | Recovered |
| | 1.0 | 190 | 0.76 | Recovered |
| | 1.1 | 240 | 1.05 | Recovered |
| | 1.1 | 240 | 1.05 | Died |
| | 1.1 | 295 | 1.29 | Recovered |
| | 1.1 | 285 | 1.25 | Recovered |
| | 1.2 ¹ | 200 | 0.96 | Died |
| | 1.2 ¹ | 250 | 1.2 | Died |
| | 1.2 ¹ | 375 | 1.80 | Died |
| | 1.3 | 315 | 1.63 | Died |
| | 1.3 | 250 | 1.3 | Died |
| | 1.4 | 195 | 1.09 | Died |

$$^1 \text{M. L. D.} = 1.2 = 83.3\%.$$

| | | | | |
|-------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 4 A. Second test after 4 months. Date of test, 11-29-16 | 1.0 | 465 | 1.86 | Recovered |
| | 1.1 | 390 | 1.71 | Recovered |
| | 1.2 | 435 | 2.08 | Recovered |
| | 1.2 | 375 | 1.8 | Recovered |
| | 1.3 | 335 | 1.76 | Recovered |
| | 1.4 ¹ | 365 | 2.04 | Died |
| | 1.4 ¹ | 330 | 1.84 | Died |
| | 1.4 ¹ | 365 | 2.04 | Died |
| | 1.6 | 450 | 2.88 | Died |
| | 1.6 | 395 | 2.52 | Died |

$$^1 \text{M. L. D.} = 1.4 = 71.5\%.$$

| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|----------------------------------------------------------------------------------------------------------------|---------------------|-----------------------|-----------------|-----------|
| No. 4 A. Third test after 7 months. Date of test, 2-1-17 | 1.5 | 340 | 2.04 | Recovered |
| | 1.5 | 435 | 2.61 | Recovered |
| | 1.6 | 350 | 2.24 | Recovered |
| | 1.6 | 355 | 2.27 | Recovered |
| | 1.7 | 325 | 2.21 | Recovered |
| | 1.7 | 325 | 2.21 | Recovered |
| | 1.8 | 350 | 2.52 | Recovered |
| | 1.8 | 420 | 3.02 | Recovered |
| | 1.9 | 250 | 1.9 | Recovered |
| | 2.0 ¹ | 485 | 3.88 | Died |
| | 2.0 ¹ | 440 | 3.52 | Died |
| | 2.2 | 385 | 3.38 | Died |
| ¹ M. L. D. = 2.0 = 50.0%. | | | | |
| No. 4 B. Same drug as No. 4 A. "Defatted" U. S. P. VIII. Menstruum, 50 percent. Date of test, 7-13-16 | 0.8 | 270 | 0.86 | Recovered |
| | 0.8 | 245 | 0.78 | Recovered |
| | 1.0 | 230 | 0.92 | Recovered |
| | 1.0 | 285 | 1.14 | Recovered |
| | 1.2 | 215 | 1.03 | Recovered |
| | 1.2 | 230 | 0.92 | Recovered |
| | 1.3 | 210 | 1.09 | Recovered |
| | 1.3 | 285 | 1.48 | Recovered |
| | 1.5 ¹ | 255 | 1.41 | Died |
| | 1.5 ¹ | 250 | 1.5 | Died |
| ¹ M. L. D. = 1.5 = 76.8%. | | | | |
| No. 4 B. Second test after 4 months. Date of test, 11-29-16 | 1.1 | 390 | 1.71 | Recovered |
| | 1.2 | 375 | 1.8 | Recovered |
| | 1.2 | 275 | 1.32 | Recovered |
| | 1.3 ¹ | 345 | 1.79 | Died |
| | 1.3 ¹ | 285 | 1.48 | Died |
| | 1.4 | 450 | 2.52 | Died |
| ¹ M. L. D. = 1.3 = 70.7%. | | | | |
| No. 4 B. Third test after 7 months. Date of test, 2-17 | 1.0 | 385 | 1.54 | Recovered |
| | 1.1 | 250 | 1.1 | Recovered |
| | 1.2 | 400 | 1.92 | Recovered |
| | 1.2 | 340 | 1.63 | Recovered |
| | 1.3 ¹ | 385 | 2.0 | Died |
| | 1.3 ¹ | 335 | 1.76 | Died |
| | 1.4 | 425 | 2.38 | Died |
| | 1.4 | 400 | 2.24 | Died |
| ¹ M. L. D. = 1.3 = 70.7%. | | | | |
| No. 4 C. Same drug as 4 A. "Defatted" 80 percent alco- hol menstruum. Date of test, 7-13-16 | 0.7 | 310 | 0.86 | Recovered |
| | 0.8 | 235 | 0.75 | Recovered |
| | 0.9 | 295 | 1.0 | Recovered |
| | 0.9 | 270 | 0.97 | Recovered |
| | 1.0 | 235 | 0.94 | Recovered |
| | 1.0 | 225 | 0.90 | Recovered |
| | 1.1 ¹ | 275 | 1.21 | Died |
| | 1.1 ¹ | 175 | 0.77 | Died |
| | 1.2 | 250 | 1.2 | Died |
| | 1.2 | 340 | 1.63 | Died |
| ¹ M. L. D. = 1.1 = 90.9%. | | | | |

| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|-------------------------------------------------------------------|---------------------|-----------------------|-----------------|-----------|
| No. 4 C. Second test after 4 months. Date of test, 11-29-16 | 1.9 | 250 | 1.9 | Recovered |
| | 2.0 | 375 | 3.0 | Recovered |
| | 2.0 | 260 | 2.88 | Recovered |
| | 2.1 | 250 | 2.1 | Recovered |
| | 2.1 | 500 | 4.2 | Recovered |
| | 2.2 ¹ | 250 | 2.2 | Died |
| | 2.2 ¹ | 495 | 4.35 | Died |
| | 2.2 ¹ | 395 | 3.47 | Died |
| | 2.3 | 250 | 2.3 | Died |
| | 2.3 | 315 | 2.89 | Died |

$$^1 \text{M. L. D.} = 2.2 = 45.4\%$$

| | | | | |
|----------------------------------------------------------------|------------------|-----|------|-----------|
| No. 4 C. Third test after 7 months. Date of test, 2-1-17 | 3.0 | 280 | 3.3 | Recovered |
| | 3.0 | 280 | 3.3 | Recovered |
| | 4.0 | 310 | 4.9 | Recovered |
| | 4.0 | 275 | 4.4 | Recovered |
| | 5.0 | 330 | 6.6 | Recovered |
| | 5.0 | 165 | 3.3 | Recovered |
| | 6.0 ¹ | 340 | 8.1 | Died |
| | 6.0 ¹ | 300 | 7.2 | Died |
| | 7.0 | 270 | 7.5 | Died |
| | 8.0 | 370 | 11.8 | Died |

$$^1 \text{M. L. D.} = 6.0 = 16.6\%$$

| | | | | |
|---------------------------------------------------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 5 A. Drug from National Analine Co., U. S. P. VIII. Menstruum, 50 percent. Date of test, 7-13-16 | 0.6 | 285 | 0.68 | Recovered |
| | 0.8 | 230 | 0.73 | Recovered |
| | 1.0 | 215 | 0.86 | Recovered |
| | 1.2 | 235 | 1.12 | Recovered |
| | 1.2 | 365 | 1.17 | Recovered |
| | 1.3 | 225 | 1.17 | Recovered |
| | 1.3 | 250 | 1.3 | Recovered |
| | 1.4 ¹ | 235 | 1.31 | Died |
| | 1.4 ¹ | 260 | 1.45 | Died |
| | 1.5 | 250 | 1.5 | Died |

$$^1 \text{M. L. D.} = 1.4 = 71.5\%$$

| | | | | |
|-------------------------------------------------------------------|------------------|-----|------|-----------|
| No. 5 A. Second test after 4 months. Date of test, 11-29-16 | 1.4 | 385 | 2.15 | Recovered |
| | 1.5 | 355 | 2.13 | Recovered |
| | 1.6 | 325 | 2.08 | Recovered |
| | 1.7 | 355 | 2.41 | Recovered |
| | 1.8 | 360 | 2.59 | Recovered |
| | 2.0 ¹ | 365 | 2.9 | Died |
| | 2.0 ¹ | 410 | 2.08 | Died |
| | 2.2 | 240 | 2.1 | Died |
| | | | | |

$$^1 \text{M. L. D.} = 2.0 = 50.0\%$$

| | | | | |
|----------------------------------------------------------------|------------------|-----|------|-----------|
| No. 5 A. Third test after 7 months. Date of test, 2-1-17 | 2.5 | 385 | 3.85 | Recovered |
| | 2.5 | 295 | 2.95 | Recovered |
| | 2.7 | 415 | 4.48 | Recovered |
| | 2.7 | 360 | 3.88 | Recovered |
| | 2.9 | 250 | 2.9 | Recovered |
| | 2.9 | 250 | 2.9 | Recovered |
| | 3.0 ¹ | 390 | 4.68 | Died |
| | 3.0 ¹ | 430 | 5.16 | Died |
| | | | | |

$$^1 \text{M. L. D.} = 3.0 = 33.3\%$$

| Sample | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------|-----------------|-----------|
| No. 5 B. Same drug as No. 5 A. "Defatted" U. S. P. VIII. Menstruum, 50 per- cent. Date of test, 7-13-16 | 0.8 | 305 | 0.97 | Recovered |
| | 1.0 | 250 | 1.0 | Recovered |
| | 1.2 | 275 | 1.32 | Recovered |
| | 1.4 | 225 | 1.26 | Recovered |
| | 1.6 | 275 | 1.76 | Recovered |
| | 1.8 | 235 | 1.69 | Recovered |
| | 2.0 | 205 | 1.64 | Recovered |
| | 2.0 | 250 | 2.0 | Recovered |
| | 2.1 | 250 | 2.1 | Recovered |
| | 2.2 ¹ | 265 | 2.33 | Died |
| No. 5 B. Second test after 4 months. Date of test, 11-29-17 | 2.2 ¹ | 295 | 2.59 | Died |
| | 2.5 | 200 | 2.0 | Died |
| | ¹ M. L. D. = 2.2 = 45.4%. | | | |
| | 3.0 | 305 | 3.66 | Recovered |
| | 3.2 | 335 | 4.28 | Recovered |
| | 3.2 | 440 | 5.63 | Recovered |
| | 3.4 | 250 | 3.4 | Recovered |
| | 3.5 | 320 | 4.48 | Recovered |
| | 3.5 | 415 | 5.81 | Recovered |
| | 3.7 ¹ | 380 | 5.62 | Died |
| No. 5 B. Third test after 7 months. Date of test, 2-1-17 | 3.7 ¹ | 250 | 3.7 | Died |
| | ¹ M. L. D. = 3.7 = 27%. | | | |
| | 3.0 | 435 | 5.22 | Recovered |
| | 3.2 | 335 | 4.28 | Recovered |
| | 3.4 | 250 | 3.4 | Recovered |
| | 3.5 | 280 | 5.32 | Recovered |
| | 3.6 | 500 | 7.2 | Recovered |
| | 3.7 ¹ | 425 | 6.29 | Died |
| | 3.7 ¹ | 310 | 4.58 | Died |
| | 4.0 | 415 | 6.64 | Died |
| No. 5 C. Same drug as No. 5 A. "Defatted" 80 percent alcohol menstruum. Date of test, 7-13-16 | 4.0 | 250 | 4.0 | Died |
| | 4.2 | 320 | 5.37 | Died |
| | ¹ M. L. D. = 3.7 = 27.0%. | | | |
| | 0.6 | 285 | 0.68 | Recovered |
| | 0.8 | 195 | 0.62 | Recovered |
| | 1.0 | 415 | 1.66 | Recovered |
| | 1.4 | 410 | 2.29 | Recovered |
| | 1.5 ¹ | 435 | 2.61 | Died |
| | 1.5 ¹ | 340 | 2.04 | Died |
| | 1.6 | 350 | 2.24 | Died |
| No. 5 C. Second test after 4 months. Date of test, 11-29-16 | 1.8 | 285 | 2.05 | Died |
| | 1.8 | 360 | 2.59 | Died |
| | 2.0 | 400 | 3.2 | Died |
| | ¹ M. L. D. = 1.5 = 66.6%. | | | |
| | 1.4 | 425 | 2.38 | Recovered |
| | 1.4 | 405 | 2.26 | Recovered |
| | 1.6 | 385 | 2.46 | Recovered |
| | 1.8 | 420 | 3.02 | Recovered |
| | 2.0 ¹ | 375 | 3.0 | Died |
| | 2.0 ¹ | 360 | 2.88 | Died |
| | 2.2 | 495 | 4.35 | Died |
| | 2.3 | 315 | 4.35 | Died |
| ¹ M. L. D. = 2.0 = 50%. | | | | |

| Sample. | Dose per 250 Gm. | Weight of pig. Gm. | Actual dose. | Results. |
|----------------------------------------------------------|------------------|--------------------|--------------|-----------|
| No. 5 C. Third test after 7 months. Date of test, 2-1-17 | 1.2 | 335 | 1.6 | Recovered |
| | 1.3 | 210 | 1.09 | Recovered |
| | 1.4 | 270 | 1.5 | Recovered |
| | 1.6 | 300 | 2.3 | Recovered |
| | 1.8 | 405 | 2.91 | Recovered |
| | 2.0 | 350 | 2.8 | Recovered |
| | 2.2 ¹ | 405 | 3.56 | Died |
| | 2.2 ¹ | 465 | 4.13 | Died |
| | 2.3 | 410 | 3.79 | Died |
| | 2.5 | 345 | 3.45 | Died |
| | 2.7 | 410 | 4.42 | Died |
| | 2.8 | 395 | 4.42 | Died |

$$^1 \text{M. L. D} = 2.2 = 45.4\%.$$

The summary of the results obtained from the previous experiments is given in the following tables:

SUMMARY OF RESULTS.

| Sample. | 1st assay. | 2nd assay. | 3rd assay | Total deterioration. |
|-----------------------------------------------------------------------------|------------------|-------------------|-----------------|----------------------------|
| No. 1 A. H. K. M. drug, U. S. P. VIII, 50% menstruum | 6-28-16 125% | 11-29-16 55.5% | 2-1-17 37.0% | 6-28-16 to 2-1-17 68% |
| No. 1 B. Same drug as No. 1 A. "Defatted" U. S. P. VIII, 50% menstruum | 6-28-16 71.5% | 11-29-16 62.5% | 2-1-17 41.7% | 6-28-16 to 2-1-17 33.8% |
| No. 1 C. Same drug as No. 1 A and No. 1 B. "Defatted" 80% alcohol menstruum | 6-28-16 125% | 11-29-16 83.3% | 2-1-17 76.1% | 6-28-16 to 2-1-17 48.9% |
| No. 2 A. Drug from P. E. Anderson, U. S. P. VIII, 50% menstruum | 7-6-16 125% | 11-29-16 71.4% | 2-1-17 62.5% | 7-6-16 to 2-1-17 62.5% |
| No. 2 B. Same drug as No. 2 A. "Defatted" U. S. P. VIII, 50% menstruum | 7-6-16 90.9% | 11-29-16 71.4% | 2-1-17 71.4% | 7-6-16 to 2-1-17 19.5% |
| No. 2 C. Same drug as No. 2 A and No. 2 B. "Defatted" 80% menstruum | 7-6-16 200% | 11-29-16 133% | 2-1-17 125% | 7-6-16 to 2-1-17 75.0% |
| No. 3 A. Drug from Werner & Gerathy, U. S. P. VIII, 50% menstruum | 7-6-16 83.3% | 11-29-16 62.5% | 2-1-17 62.0% | 7-6-16 to 2-1-17 21.3% |
| No. 3 B. Same drug as No. 3 A. "Defatted" U. S. P. VIII, 50% menstruum | 7-6-16 62.5% | 11-29-16 62.5% | 2-1-17 62.5% | 7-6-16 to 2-1-17 0.0% |
| No. 3 C. Same drug as No. 3 A and No. 3 B. "Defatted" 80% menstruum. | 7-6-16 166% | 11-29-16 150% | 2-1-17 143% | 7-6-16 to 2-1-17 23% |
| No. 4 A. McKesson & Robbins drug, U. S. P. VIII, 50% menstruum | 7-13-16 83% | 11-29-16 71.5% | 2-1-17 50.0% | 7-13-16 to 2-1-17 33% |
| No. 4 B. Same drug as No. 4 A. "Defatted" U. S. P. VIII, 50% menstruum | 7-13-16 76.8% | 11-29-16 70.7% | 2-1-17 70.7% | 7-13-16 to 2-1-17 6.1% |
| No. 4 C. Same drug as No. 4 A and No. 4 B. "Defatted" 80% alcohol menstruum | 7-13-16 90.9% | 11-29-16 45.4% | 2-1-17 16.6% | 7-13-16 to 2-1-17 74.3% |
| No. 5 A. Drug from National Aniline Co., U. S. P. VIII, 50% menstruum | 7-13-16 71.5% | 11-29-16 50.0% | 2-1-17 33.3% | 7-13-16 to 2-1-17 38.2% |
| No. 5 B. Same drug as No. 5 A. "Defatted" U. S. P. VIII, 50% menstruum | 7-13-16 45.4% | 11-29-16 27.0% | 2-1-17 27.0% | 7-13-16 to 2-1-17 18.4% |

SUMMARY OF RESULTS—Continued.

| Sample. | 1st assay. | 2nd assay. | 3rd assay. | Total deterioration. |
|-----------------------------------------------------------------------------------|------------------|-----------------|-----------------|----------------------------|
| No. 5 C. Same drug as No. 5 A and No. 5 B. "Defatted" 50% alcohol menstruum | 7-13-16 66.6% | 11-29-16 50% | 2-1-17 45.4% | 7-13-16 to 2-1-17 21.2% |

It will be noted from the above results that every sample except one, *i. e.*, No. 3 B, showed marked deterioration, some samples deteriorating as much as 75 percent in seven months. These results will, therefore, tend to prove that in most cases tincture of digitalis not only deteriorates but deteriorates very rapidly.

The results also show that the "fat-free" or "defatted" tinctures of digitalis *do not* deteriorate more rapidly than the regular U. S. P. VIII tincture, as the ten "defatted" tinctures only show an average deterioration of 32 percent for the seven months' period of test, whereas the five U. S. P. VIII tinctures show a deterioration of 44.6 percent for the same period of time.

From the results of these experiments we can, therefore, draw the following conclusions:

- (1) Most tinctures of digitalis deteriorate very rapidly.
- (2) "Fat-free" or "defatted" tinctures of digitalis do not deteriorate at a greater rate than the U. S. P. VIII tinctures.

PHARMACODYNAMIC LABORATORY,

H. K. MULFORD COMPANY,

August 24, 1917.

AN IMPROVED LIME METHOD FOR ASSAYING OPIUM.*

BY WM. MASKE, JR.

This assay method has been the outcome of several which the writer has read and experimented with but the foundation of the assay outlined herein is a somewhat crude process by A. Guerin as given in the *Jahresberichte der Pharmazie*, Vol. 48, Page 45. As this writer collects 52 Cc. filtrate instead of the 50 Cc. as advised in this paper, and the first quantity can not readily be measured accurately, one can just as well collect 50 Cc., an amount which can be accurately measured in a volumetric flask or sucked up in a volumetric pipette, and add the correction factor, which amounts to the same thing as collecting 52 Cc. of filtrate.

The lime method of assaying opium for its morphine content is probably used more than any other method of assaying this drug. The U. S. P. uses a lime process which gives good results in the hands of experienced workers, but which for a beginner is apt to prove cumbersome. Moreover, the method takes more time and work than is necessary. The writer has successfully used the following modification of the lime method, which is simpler, less cumbersome than the U. S. P. method, and gives just as accurate results:

Method: Weigh out 7.5 Gm. of opium and dry at 60° C. Transfer the dried opium to a mortar containing 5 Gm. of fine, clean quartz sand and 3 Gm. of slaked lime. Triturate the three ingredients thoroughly until a finely divided homo-

* Read before Scientific Section A. Ph. A., Indianapolis meeting, 1917.

geneous mixture of opium is obtained. Brush the contents of the mortar on a piece of glazed paper and from there into a glass-stoppered Erlenmeyer flask of about 150 Cc. capacity. Add 75 Cc. of distilled water and shake vigorously for fifteen minutes, and then every ten minutes during three hours (or continuously in a mechanical shaker). Filter off 50 Cc. of the solution into a 50 Cc. volumetric flask. This represents approximately 5 Gm. of opium.

Transfer the whole of the filtrate to a separator, washing the flask with a small portion of distilled water. Add 15 Cc. of ether and shake thoroughly. Now add 1 Gm. of ammonium chloride and shake frequently for half an hour; then set it aside in a cool place overnight. Plug the stem of the separator fairly tight with a pledget of purified cotton and allow the liquid to drain off. Wash the funnel and its contents with morphinated water until the drippings are colorless, then wash with two small portions of distilled water to replace the morphinated water. Dislodge the cotton plug in the separator stem by blowing vigorously into the top of the separatory funnel and catch it in a clean Erlenmeyer flask.

Close the stop-cock and add 25 Cc. of tenth-normal sulphuric acid, V. S., replace the stopper and agitate until the crystals in the separator are dissolved. Then dissolve the crystals in the stem of the separator by holding the funnel at an angle, allowing the acid to run out slowly into the Erlenmeyer flask and at the same time rotating the separator. Wash the separator with three 10 Cc. portions of distilled water; also wash the stem of the separator, adding all of these washings to the contents of the Erlenmeyer flask. Agitate the flask until any remaining crystals are dissolved and titrate the excess of acid with fiftieth-normal potassium hydroxide, V. S. Make a correction by adding to the actual number of Cc. of acid consumed one twenty-fifth of this amount. Each mil of tenth-normal sulphuric acid, V. S., consumed corresponds to 0.028516 Gm. of anhydrous morphine.

UNIVERSITY OF WASHINGTON,
COLLEGE OF PHARMACY.

TOLU AND SUGAR COATING IN THE DISGUIISING OF MEDICINES.

BY BERNARD FANTUS, M.D.

The disguising of disagreeable medicines is, in general, a problem of sneaking the agent past the guardianship of the palate, without changing the substance to such an extent as to impair its medicinal activity. One means of doing this is by some coating insoluble in the saliva but soluble in some of the other digestive juices. Capsules and pills solve this problem for the adult. For children, the problem of coating of medicines is thus far unsolved.

For quite a time I have worked upon the coating of tiny granules of medication with insoluble material: Have tried cacao butter, paraffin of low melting point dissolved in ether, liquid petrolatum, and, though each of these did something in the direction of subduing tastes, none of them was satisfactory. Of late, I experimented with resins, such as mastic and tolu, and believe I have found in the latter an agent that meets the requirements. Mastic does not seem to be more efficient than tolu, and is much inferior to it in flavor.

My aim is to coat each particle of the medicament with a thin layer of resin and then with sugar, which I believe can be accomplished in the following manner: The coarsely powdered (No. 40) or granular drug is stirred up with a suitable amount of a 1 or 2 percent alcoholic solution of tolu. It is then immediately thrown upon powdered sugar on a coarse mesh sieve, say a No. 20 sieve. As the resin-impregnated material is being rubbed through the sieve, it is at the same time converted into granules and coated with sugar. By repeating the sifting several times, and then mixing the granules gently and without trituration, a considerable degree of lessening of the taste of substances suitable for this process can be obtained.

It is of advantage to add saccharin to the tolu solution. For, whenever substances of unequal degree of solubility pass through the mouth, the least soluble material is the one that is tasted most, because it is tasted last, and its taste lingers as long as there is a particle of the substance left in the mouth or pharynx. This lingering taste is best subdued by saccharin.

I therefore use the following solution for the saturating of the medicinal powder of granules:

SACCHARINATED SOLUTION OF TOLU.

| | |
|----------------|-------|
| Tolu..... | 2.0 |
| Saccharin..... | 2.0 |
| Alcohol..... | 100.0 |

TOLU-COATED CALCIUM SALICYLATE.

The problem of the administration of salicylate in "candy form" was not solved in a perfectly satisfactory manner in my previous publications on "Candy Medication."¹ In the series of salicylates studied, *salophen* (acetylaminosalol) gave the best results, both as far as palatability and clinical usefulness were concerned. Of this substance, 0.06 Gm. (1 grain) can be readily administered in a 0.30 Gm. (5 grain) tablet. *Saloquinine*, of which 0.06 Gm. (1 grain) may also be administered in this form, is somewhat less satisfactory, as far as taste is concerned. There are, however, occasions when it may be undesirable to administer the other agent with which the salicylate is combined in the substance mentioned: the quinine in the case of saloquinine, the phenacetin in the case of salophen. Furthermore, salophen has of late been unobtainable in the market, owing to the European war.

Aspirin (acetylsalicylic acid) is so difficult to disguise that not more than 0.015 Gm. ($\frac{1}{4}$ grain) can be given in a 0.30 Gm. (5 grain) tablet; and even then the preparation is by no means perfect. *Novaspirin* (methylene-citrylsalicylic acid) is much better from the standpoint of disguising, 0.015 Gm. ($\frac{1}{4}$ grain) producing practically perfect tablets. Even 0.03 Gm. ($\frac{1}{2}$ grain) may be given in this form. However, the dose is still rather small. Of *magnesium salicylate*, not more than 0.03 Gm. ($\frac{1}{2}$ grain) can be given in this form; and even this dose does not make a perfect preparation.

As only perfectly delicious sweet tablets should be used as "candy medica-

¹ "Candy Medication," C. V. Mosby Company, St. Louis. "Candy Medication," *Journ. A. M. A.*, Jan. 1, 1916, LXVI, pp. 25-28

tion," it is desirable that aspirin and magnesium salicylate be deleted from the "candy materia medica." This can be done all the more readily as we now have in sweet tablets tolu-coated calcium salicylate, prepared according to the following formula, a satisfactory administration form of salicylate.

SWEET TABLETS OF CALCIUM SALICYLATE.

0.06 Gm. (1 grain).

| | |
|-------------------------------------|-----------|
| Calcium Salicylate (granular)..... | 6.00 Gm. |
| Saccharinated Solution of Tolu..... | 3.00 mls |
| White Fat Sugar ² | 24.00 Gm. |

Pour the tolu solution over the calcium salicylate. Stir without pressure, until the granules have been thoroughly moistened with the fluid. Place the white fat sugar upon a No. 20 sieve. Now add the tolu-coated calcium salicylate to the sugar and pass it through the sieve repeatedly, so as to sugar-coat the granules of calcium salicylate as well as to secure thorough admixture. Compress in a tablet machine, using $\frac{3}{8}$ inch die and punches to make one hundred 0.30 Gm. tablets.

Without the tolu and sugar coating, as described in the above process, calcium salicylate is no better than magnesium salicylate for administration in this form. However, owing to its comparative insolubility in alcohol, it lends itself well to tolu coating. That these tablets liberate the salicylate ion can be readily demonstrated by taking a few of them, whereupon the urine will give the characteristic reaction with ferric chloride within two hours.

Inasmuch as tolu and sugar coating promised to be of help in the administration of other medicaments, further experiments were undertaken with this process. It was soon found that, to be suitable for this purpose, the agent must be sparingly soluble in alcohol and in water. Sodium bromide, for instance, does not lend itself to this method of disguising. On the other hand, there is a host of vegetable powders that may well be disguised by this method.

TOLU-COATED SENNA.

Physic is still the most important agent in the armamentarium of the physician. Phenolphthalein and calomel have thus far been the best cathartics from the standpoint of tastelessness; elaterin, podophyllin and jalap, though easily disguised, being too drastic. Calomel can, of course, not be used frequently; and phenolphthalein is a substance that patients readily become habituated to, so that the dose must be increased from time to time. The senna tablets, containing 0.06 Gm. (1 grain), the formula for which had been previously devised,

² *White Fat Sugar* is prepared as follows:

| | |
|---------------------------|-----------|
| Spirit of Peppermint..... | 2.00 mls |
| Fat Starch*..... | 20.00 Gm. |
| Sugar, Powdered..... | 80.00 Gm. |

To the powdered sugar add the fat starch and the spirit of peppermint. Mix and preserve in a well-stoppered bottle in a dark place.

* *Fat Starch* has the following composition:

| | |
|------------------------------------------|-----------|
| Alcoholic Solution of Saccharin, 3%..... | 15.00 mls |
| Liquid Petrolatum..... | 25.00 Gm. |
| Starch..... | 75.00 Gm. |

Mix the starch with the solution of saccharin, and permit the alcohol to evaporate completely. Then incorporate the liquid petrolatum.

were not absolutely perfect. By means of tolu-coating a perfect tablet can be obtained, as the result of the following formula:

SWEET TABLETS OF SENNA (IMPROVED FORMULA).

| | |
|-------------------------------------|-----------|
| 0.06 Gm. (1 grain). | |
| Senna, No. 40 Powder..... | 6.00 Gm. |
| Saccharinated Solution of Tolu..... | 6.00 mils |
| Red Fat Sugar ³ | 24.00 Gm. |

Doubt might be entertained regarding the efficiency of the tolu-coated drug. I therefore experimented upon myself, and found that 0.50 Gm. of senna in form of these tablets gave me violent purgation within eight hours. Even 0.30 Gm. of senna in form of these tablets proved unpleasantly strong in purgative effect after ten hours. I must confess than I am rather sensitive to cathartics. However, there is no doubt in my mind that these tablets are an efficient physic.

TOLU-COATED IPECAC.

In view of the importance of ipecac as an emetic and expectorant, I did considerable experimenting with it; but was unable to subdue its taste sufficiently to administer useful doses of it in perfectly pleasant form. Tolu-coating, as proposed, solves the problem of the administration of ipecac in "candy form." As much as 0.03 Gm. of powdered ipecac can be given, which is practically equal in strength to 1/2 mil of syrup of ipecac, so that two of these tablets would represent the average expectorant dose for adults. A few of these tablets ought to be sufficient to produce vomiting in a child. I felt distinctly nauseated an hour after taking five of them.

The following formula for 0.03 Gm. (1/2 grain) ipecac tablets might, therefore, be considered emetic for children, expectorant for adults. Tablets of 1/10 the strength would give a sufficient dose for expectorant action in children, 3 years of age.

SWEET TABLETS OF IPECAC.

| | |
|------------------------------------|-----------|
| 0.03 Gm. (1/2 grain). | |
| Ipecac, No. 40 Powder..... | 3.00 Gm. |
| Saccharmated Solution of Tolu..... | 3.00 mils |
| Cacao Sugar. ⁴ | 27.00 Gm. |

Process of preparation same as specified in first formula.

³ Red Fat Sugar is prepared as follows:

| | |
|-------------------------------------|-----------|
| Solution of Carmine, N. F..... | 6.00 mils |
| Spirit of Cinnamon, 10 percent..... | 1.00 mils |
| Fat Starch..... | 20.00 Gm. |
| Sugar, Powdered..... | 80.00 Gm. |

Mix the carmine solution with the sugar and permit the powder to dry. Then add the spirit of cinnamon. Preserve in well-stoppered bottle in a dark place.

⁴ Cacao Sugar:

| | |
|-------------------------------------|-----------|
| Spirit of Cinnamon, 10 percent..... | 0.50 mil |
| Cacao Powder..... | 10.00 Gm. |
| Dextrose..... | 10.00 Gm. |
| Sugar, Powdered..... | 80.00 Gm. |

Mix thoroughly by trituration in a mortar, and preserve in a well-stoppered bottle.

To ascertain the relative effects of tolu-coated ipecac and of the drug without coating, one dog was given by stomach tube 0.2 Gm. of ipecac No. 40 powder per Kg. Another dog was given the same relative amount of the same drug, previously coated with tolu and sugar, as described above. Care was taken to permit the tolu-coating to dry before administration. In both cases the drug was mixed with 50 mls of water and injected into the stomach through the stomach tube by means of a large syringe. The results are shown in Table I, from which

TABLE I.

COMPARISON OF EFFECTS OF IPECAC AND TOLU-COATED IPECAC UPON DOGS WITH EMPTY STOMACH. STOMACH TUBE ADMINISTRATION.

| Time | { | Hour | | 10: | | 10: | | 11: | | 11: | | 12: | | 12: | | 1: | | 1: | | 2: | | 2: | |
|--------|---|-------------|--|-----|----|-----|--|-----|----|-----|--|-----|----|-----|--|----|----|----|--|----|----|----|--|
| | | Minutes | | 15 | 30 | 45 | | 15 | 30 | 45 | | 15 | 30 | 45 | | 15 | 30 | 45 | | 15 | 30 | 45 | |
| Dog 1 | | Dose | | | | | | | | | | | | | | | | | | | | | |
| | | Ipecac | | | | | | | | | | | | | | | | | | | | | |
| | | 0.2 X Kg. | | | | | | | | | | | | | | | | | | | | | |
| Dog 2. | | Dose | | | | | | | | | | | | | | | | | | | | | |
| | | Tolu ipecac | | | | | | | | | | | | | | | | | | | | | |
| | | 0.2 X Kg. | | | | | | | | | | | | | | | | | | | | | |

X means emesis; b. m., bowel movement.

It will be seen that the effect of tolu-coated ipecac sets in a little later and is milder.

it is evident that some of the emetic action of ipecac is still obtainable from the tolu-coated drug. The action is merely delayed and milder. That drying of the tolu-coating is necessary for reliable results was shown by another experiment in which such care was not exercised, and which resulted in the dog that obtained the tolu-coated drug, vomiting 15 minutes after the administration, while the control animal did not vomit until 48 minutes had elapsed. The emesis was equally frequent in both doses, both dogs vomiting about seven times within the next few hours.

TOLU- AND SUGAR-COATED DIGITALIS.

In view of the importance of digitalis as a medicament, experiments were next undertaken to determine the suitability of this substance and it can be positively asserted that tolu-coating gives a much better product than the form previously developed.

SWEET TABLETS OF DIGITALIS.

(Improved formula.)

0.008 Gm. ($\frac{1}{8}$ grain).

| | |
|-------------------------------------|-----------|
| Digitalis, 40 Powder..... | 0.80 Gm. |
| Saccharinated Solution of Tolu..... | 1.60 mls |
| Cacao Sugar ^b | 29.20 Gm. |

Preparation same as before described.

Twice the dose, that is, 0.016 Gm. ($\frac{1}{4}$ grain) and even more could be administered in perfectly delicious form by means of this process.

Of course, the most important question is whether the tolu-coated digitalis does or does not have the same action as the native drug; for activity is of much greater importance than palatability. A study was therefore undertaken to compare the toxicity of the two forms of digitalis. At first, an attempt was made to

^b Formula in footnote on previous page.

use rabbits for this purpose. It was found almost impossible to kill rabbits with digitalis. As much as 4 Gm. per Kg. did not have uniform effects, some animals surviving and some dying a few days later. The administration of digitalis to dogs leads to vomiting. It therefore became necessary to administer morphine previously, to prevent the emesis. In the experiments about to be reported, 4 Mg. of morphine sulphate per Kg. were given hypodermically one hour before administration of the dose. During this time, the dogs vomited and purged freely. They were then given, by means of the stomach tube, the tolu- and sugar-coated digitalis prepared according to the formula given and permitted to dry, while control dogs were given equivalent doses of the same drug in its native form.

The results are shown in Table II, from which it is evident that tolu-coating does not greatly lessen the toxicity of digitalis to dogs.

TABLE II.

COMPARISON OF EFFECT OF DIGITALIS WITH TOLU-COATED DIGITALIS ADMINISTERED TO MORPHINIZED DOGS BY MEANS OF STOMACH TUBE.

| Dog. | Weight, Kg. | Dose per Kg. | Total dose. | Lived. | Necropsy. |
|-----------------|-------------|--------------|-------------|--------|-------------------------------------------------------------------------------------|
| Tolu Digitalis. | | | | | |
| 1. | 8.70 | 2 Gm. | 17.4 | 1 day | Much digitalis in stomach. Submucous hemorrhages in stomach. Urine contains albumin |
| 2. | 10.00 | 1.5 | 15.00 | 1 day | Much digitalis in stomach. Some gastric irritation |
| 3. | 7.00 | 1.0 | 7.00 | Lived | |
| 4. | 6.00 | 1.0 | 6.00 | 2 days | Stomach almost empty. No albumin in urine |
| 5. | 5.00 | 1.0 | 5.00 | 1 day | Much digitalis in stomach. Upper part of intestine hemorrhagic in spots |
| 6. | 3.60 | 1.0 | 3.60 | 2 days | No necropsy performed |
| 7. | 5.9 | 1.0 | 5.9 | 1 day | Stomach contains moderate amount of digitalis. No albumin in urine |
| Digitalis. | | | | | |
| 10. | 6.50 | 2 Gm. | 13.00 | 1 day | No necropsy performed |
| 11. | 8.00 | 1 Gm. | 8.00 | 1 day | No necropsy performed |
| 12. | 8.60 | 1 Gm. | 8.60 | 2 days | No necropsy performed |
| 16. | 11.40 | 1 Gm. | 11.40 | 1 day | No necropsy performed |
| 13. | 10.00 | 0.5 Gm. | 5.00 | 1 day | Much digitalis in inflamed stomach |
| 14. | 9.50 | 0.5 Gm. | 4.75 | Lived | |
| 15. | 10.00 | 0.25 Gm. | 2.50 | Lived | |

SUMMARY OF ABOVE DETAILED EXPERIMENTS

| Dose per Kg. | Tolu-Coated Digitalis. | | Digitalis. | |
|--------------|------------------------|---------|---------------------|-----------|
| | No. of experiments. | Result. | No. of experiments. | Result. |
| 2 Gm. | 1 | Died | 1 | Died |
| 1.5 Gm. | 1 | Died | | |
| 1 Gm. | 5 | 4 died | 3 | All died |
| 0.5 Gm. | | | 2 | 1 died |
| 0.25 Gm. | | | 1 | Recovered |

It will be seen that there is not much difference in the toxicity of digitalis and of tolu-coated digitalis.

It is interesting to note, in this connection, that morphinized dogs dying within 24 hours of the administration of the poison still hold a large amount of digitalis in their stomach, while dogs dying within 2 days had an almost empty stomach. Inasmuch as the death, in either case, was due to the digitalis, one is led to suspect that the gastric juice is capable of extracting the active principles even from tolu-coated digitalis. It seems fair to infer that tolu-coated digitalis will exert its action in the human being.

CONCLUSIONS.

1. Tolu and sugar coating of granulated medicaments of slight degree of solubility in alcohol and water is distinctly advantageous from the standpoint of disguising.
2. This coating does not interfere with the activity of digitalis, senna and of calcium salicylate. It may lessen somewhat the effect of ipecac upon the stomach.
3. Tolu and sugar coating can easily be carried out by any pharmacist, provided with a set of sieves.
4. The medication, thus disguised, might be administered in the form of powder or preferably in form of compressed tablets.

LABORATORY OF PHARMACOLOGY,
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SOME COLOR CHANGES IN SOLUTIONS CONTAINING FERRIC CITRO-CHLORIDE.*

BY WILLIAM R. WHITE.

In making a stock solution of ferric citro-chloride, the same strength as the Tincture Ferric Citro-Chloride, N. F., for use in making elixirs, I have frequently noticed a difference in the shade of the green color produced. Seeking to obtain the same shade each time, I proceeded along the lines suggested by Prof. Otto Raubenheimer in his article published in the JOURNAL OF THE A. PH. A., Vol. IV, p. 351. By adding sodium bicarbonate I succeeded in getting the desired apple-green color. The process was tedious and the effervescence annoying, and induced me to make other experiments.

I soon found that not only would alkali carbonates and bicarbonates change the color of the solution from an olive-green to an apple-green but also that the alkali hydroxides would produce the same results; an excess, however, destroys the green color, which changes to a reddish brown.

I next tried the effect of the mineral acids, hydrochloric, sulphuric and nitric, and found that when they were added in excess to a green solution, the green color was entirely destroyed and like with the excessive addition of alkali a reddish brown color produced. Also if the acid is added gradually to a reddish brown solution, produced by the addition of excess alkali, the solution again assumes a green color; continued addition of acid causes the green color to disappear and the solution again becomes reddish brown. By adding alkali to a reddish brown solution, due to excess of acid, the green color is again developed and gives place to the reddish brown color when the alkali is in excess.

These experiments proved that the green color does not persist in a ferric citro-chloride solution unless the acidity or alkalinity is within certain degrees

* Read before Scientific Section, A. Ph. A., Indianapolis meeting.

of limitation. In order to determine the limits of the green zone, 5 mls of the N. F. tincture of ferric citro-chloride were titrated with half-normal V. S. hydrochloric acid and it was found that 8.5 mls of the latter would destroy the green color, and to 5 mls of the same tincture 61.8 mls $\frac{N}{10}$ NaOH V. S. were added to obtain the same yellowish tint with both solutions being made up to the same volume with distilled water. One hundred mls of tincture of citro-chloride of iron then would require 85 mls $\frac{N}{1}$ HCl V. S., and 123.6 mls $\frac{N}{1}$ NaOH V. S.; the end-point, however, was not very sharp and these figures may be considered as approximate.

Having learned from these investigations how to get the desired shade, I then began a series of experiments to find out why the green color of solutions, containing iron citro-chloride, would turn darker when exposed to light. On May 21, 1917, I made up a solution containing 10 percent of a solution of ferric citro-chloride, of same strength as the N. F. tincture and 90 percent of distilled water. To one and one-half ounces I added 10 grains of boric acid; to a like quantity 10 grains of reduced iron; to four ounces 5 grains of potassium chlorate; to three and one-half ounces $\frac{1}{2}$ ounce of syrup. The bottles containing these solutions were placed in a window and exposed to sunlight. To these a bottle with one and one-half ounces of the original 10 percent solution was added, and another like quantity was placed in a box, protecting the solution from the light.

After three days each of the solutions exposed to light liberated carbon dioxide, indicated by tests with solution of lead subacetate and solution of calcium hydroxide; the one with reduced iron had become decolorized, but turned yellow when exposed to the air, which indicated a case of reduction and oxidation.

After three months all of the solutions exposed to light had assumed a reddish brown color except the one with reduced iron and this varied from colorless to brown, always turning darker when the stopper was removed and the solution exposed to the air. The sample not exposed to the light retained its green color with no apparent change.

The discovery of the development of carbon dioxide is in accordance with the work done by W. L. Scoville (JOURNAL A. PH. A., Vol. IV, p. 590), who showed its presence in wine of beef and iron, made with ferric citro-chloride, and he claimed that it was produced by the ferric salt oxidizing the citric acid. J. J. Willaman, in an article entitled "A Modification of the Pratt Method for Determination of Citric Acid" (J. Am. Chem. Soc., Vol. 38, p. 2193), demonstrated that citric acid can be determined quantitatively by the fact that it forms acetone when oxidized by potassium permanganate. Believing that the citric acid is oxidized by the ferric iron and thinking that perhaps acetone might be formed in the solutions under consideration, a test was made which proved its presence.

An effort was then made to discover what would restore the green color to solutions of ferric citro-chloride which had turned brown by the action of sunlight. It was found that the addition of the mineral acids named would lighten the solutions materially, and in those which had only turned a reddish brown, the green color would be partially restored.

Citric acid was added and produced the same results in restoring the green

color and it was found that an excess of it would not cause the reddish brown color produced by excess of the mineral acids, therefore citric acid seems best suited for restoring the green color. However, when citric acid was added to an elixir of calisaya and iron, made about a year previous that had turned black, the citric acid alone failed to restore the color, but with the further addition of reduced iron the solution was restored to a light yellow color.

It was found that the green solutions responded to the test for ferric iron, while those of a reddish brown color to a ferrous condition.

SUMMARY.

The following conclusions have been reached:

1. That acids and alkalies beyond certain limits will destroy the green color of solutions of ferric citro-chloride, and these limits have been approximately determined.
2. That in solutions of ferric citro-chloride, exposed to sunlight, the citric acid is decomposed with the formation of carbon dioxide and acetone, and it is probable that the sodium liberated combines with the chlorine, lessening the acidity; the restoration of the color by the addition of acids indicates this.
3. That the iron exists in the green compounds in the ferric state and is reduced to the ferrous in the reddish brown and colorless solutions.
4. That citric acid can be used to lighten solutions and elixirs when of a reddish brown color, but that citric acid and reduced iron should be used together when these preparations have turned black.
5. That the green color is more than likely the result of a new compound of sodium citro-chloride and that the excess of acids destroys this. An excess of alkali in all probability causes the formation of ferric hydroxide, producing a reddish brown color.

The work done so far on this paper is presented in the hope that it will stimulate further investigation of this important subject.

Samples of the various products were shown.

ABSTRACT OF DISCUSSION.

W. L. SCOVILLE: This work of Mr. White is very interesting and practical; we need more of that kind on the iron preparations. This whole question of the physical chemical qualities of iron has got to be worked out from the bottom up. Prof. Stevens started an investigation some years ago, but he did not have time to finish it. We must consider that iron has an acidic as well as a basic character. We have a class of compounds known as the ferrates. Now there seems to be a condition in which the iron takes on the acidic character, and in which it is very sensitive to chemical change, not so much in itself, but in the agents with which it is combined. This action on the citric acid is simply an evidence that the iron is probably active in its acidic character.

I hope some day the universities will take up the whole question of the physical properties of iron, and give us the fundamental principles under which these color changes, as well as other changes, in the iron actually take place.

C. P. WIMMER: I might add that the problem, to my mind, is more of a color chemical problem all the way through, because I believe, for example, that this solution of iron citro-chloride is a colored solution and when the iron chloride is dialyzed out citric acid will be left. I want to substantiate what Prof. Scoville has said, that this aspect of the iron salts presents untold possibilities for research. I have done some work on it, and I hope by another year I will be far enough advanced to make a report on it.

PRACTICAL PHARMACY SECTION

THE CARREL-DAKIN SOLUTION PHARMACEUTICALLY AND PHYSIOLOGICALLY CONSIDERED.*

BY ST. CLAIRE RANSFORD-GAY.

There has been no preparation of recent years, excepting, perhaps Normal Saline, which in effectiveness and simplicity has equaled the Carrel-Dakin solution, and in conceding that it is a most wonderful and practical application of scientific phenomena, we simply prove that it is not necessary, nor is it expedient, to tamper with the laboratory of nature, in order to obtain perfect products for the restoration of body balance. Therefore, synthetic products, while perhaps identically the same in formula but reinforced through the benzole ring, not being natural, do not contain the same amount of energy that is found in the natural product, hence disease will respond, if at all to these latter compounds, only in proportion to the amount of their potential force, which through the agency of the body is convertible to kinetic energy. This is the reason that synthetic preparations for instantaneous use, now marketed in such great profusion, have failed to give satisfactory results, in the hands of experienced practitioners, and, moreover, have seriously interfered with the use of the original solution.

A word as to the best method of manufacture and keeping yet found by us, and some hints from practical experience with a product that corresponds with all of the requirements set down by Dr. Carrel may be an aid to those who for themselves have not had an opportunity to do any special work along this line, and, as well, will serve as an excuse for the reason why this solution should be regarded as purely individual in its curative factors, and general only inasmuch as it contains all the materials for promoting healthy granulation, but the use of the solution must be modified to suit the condition to be treated.

The following formula, with which we obtained the best results, does not appear to be balanced, but a little pharmaceutical arithmetic will show that when U. S. P. salts are used the resulting solution will contain 0.5 percent of sodium hypochlorite, with small amounts of neutral sodium salts:

| | |
|-------------------------------------|------------|
| Chlorinated Lime ¹ | 200 Gm. |
| Sodium Carbonate (Dried)..... | 100 Gm. |
| Sodium Bicarbonate..... | 50 Gm. |
| Distilled Water..... | 10,000 mls |

When made on a large scale, say 25 to 50 gallons, it is very easy to siphon off the supernatant liquid, and filter it, so as to obtain a clear solution, but the manufacture of small quantities is troublesome. It must be understood, too, that the process is not merely one of adding the salts to the water, making the solutions and immediately pouring one into the other, thus obtaining in say an hour, a product

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Indianapolis, meeting, 1917.

¹ Based on strength of 25 percent chlorine determined by titration; a corresponding amount must be used if the chlorinated lime is not of this strength.

fit for use. No indeed, nature takes just so long to act, and in hastening her action, we are depriving the finished product of just so much energy, and that will be manifested in the finished product, when titrated. The following technic and method of keeping, if carefully followed, will give a product which will obviate the necessity of making the solution fresh every three days and thus lower the cost to those who are unable to pay for the extra labor and great waste of material thus entailed. It is the high cost of this solution to those of limited means that keeps many physicians from using the solution even when the necessity is very great. The chlorinated lime U. S. P. should be put into a large bottle, and half of the water added. This is well stirred during six hours, and allowed to stand over night. The sodium salts are dissolved separately, each in a quarter of the remaining water, and allowed to stand over night. In the morning the sodium bicarbonate solution and the precipitate are poured into the chlorinated lime, and the whole well shaken. The sodium carbonate solution and precipitate are then added quickly so as to absorb readily the nascent chlorine which has been previously liberated by the sodium bicarbonate. (We have found that because of its greater solubility in cold water, the lime should be treated with water at a temperature of from 55 to 60° F., and kept at that temperature until the sodium salts are added, they too being in as cold a solution as possible.)

The mixture is now well stoppered, shaken thoroughly for ten minutes, and then allowed to settle. The supernatant liquid is siphoned off, and though filtered through paper, the stem of the funnel is well packed with asbestos, because the quality of the filter paper on the market at the present time leaves much to be desired as far as strength is concerned. The finished product is a clear liquid, with a marked odor of chlorine, which when titrated according to this method, contains 0.5 percent sodium hypochlorite.

"Put 20 mils of solution in a glass, and pour on the surface a little, say 2 cgm., of phenolphthalein powder, and shake with a circular motion, as in rinsing. The liquid should remain colorless, a red discoloration indicating free alkali or too little carbonation which must be corrected before titration."

"Titration: To 10 mils of the solution add 10 mils of distilled water, 2 Gm. of potassium iodide, and 2 mils of acetic acid. Pour into this mixture a $\frac{N}{10}$ (2.48 percent) solution of sodium hyposulphite, until it is decolorized. The number of mils of hyposulphite solution, multiplied by 0.3725, equals the percentage of sodium hypochlorite in the solution." This method is very simple and accurate.

All the technic, however, is not confined to the manufacture, which, as previously stated, should be carried out at as low a temperature as possible, and with as little light (natural or artificial) as convenient. After the solution has been filtered, it should be put up in well corked bottles and kept in the ice-box away from light. In this way it is possible to keep the solution for several weeks without deterioration, but in spite of the fact that these are ideal keeping conditions we titrate it each time before dispensing. The patient and doctor should be advised to observe this method of keeping the solution.

When the solution has turned lavender, it is no longer fit for use. In spite of the fact that every precaution has been exercised in the technic, the doctor sometimes fails to obtain his results, and despite argument on the part of the pharmacist,

he is convinced that it is the fault of the solution. It may be well then, to bear, in mind the following: This solution without dilution, is admirably suited to what may be termed the gross wounds of the battlefield, for two reasons: first, the men sustaining the wounds have gone into battle in perfect physical condition and are really physically "fit" and the infection being recent and local, the system is depleted only from shock and a normal loss of blood because under these conditions clotting must occur in the normal time. Therefore a great deal of the energy of the solution is used up in the removal of all effete material, and the remaining energy of the sodium hypochlorite serves to disinfect the wound, and to promote healthy granulation of the wounded area. If you will notice Dr. Carrel's method of using the solution, you will see that after the granulations have arrived at a certain point, the irrigating then proceeds only at intervals, and the strength is accordingly decreased.

Take, however, the typical hospital case, first of all, only a very few of the ward cases enter the hospital in good condition. Then if the patient has a septic condition warranting operation, the chances are ten to one that it has passed the local stage. Therefore, a solution containing 0.5 percent sodium hypochlorite will not be isotonic with her blood serum, as she will already have more sodium than she can take care of, due to the infection, and an additional amount in the solution will do more harm than good. It is well, therefore, to begin operations with a dilute solution, and to increase the strength if necessary, and we have found that in the irrigation of a kidney, the bladder or the vagina that the solution should be diluted from one-half to one-third. If, therefore, the strength of the solution is adapted to the individual case, even the most inexpert practitioner will be able to obtain results, provided that he supplements his treatment with the other salts required for the maintenance of and the restoration of the body balance which has been so disturbed by the septic condition that an anemia or worse may be the result if great care is not used in the after-treatment of the surgical condition.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service for the seven days ended February 13, 1918.

Pharmacist J. A. Wolfe. Return to station, Philadelphia, Pennsylvania. Feb. 12, 1918.

Sanitary Engineer C. N. Harrib. Proceed to Augusta, Ga., on special temporary duty. Feb. 8, 1918.

Sanitary Engineer H. W. Van Hovenberg. Proceed to New Orleans, La., for duty in malaria investigations. Feb. 6, 1918.

Sanitary Bacteriologist E. M. Meyer. Proceed to Berea, Kentucky, for duty in investigations of meningitis. Feb. 4, 1918.

Sanitary Inspector Virgil H. Robinson. Relieved at Tacoma, Washington. Proceed to Seattle, Washington. Feb. 8, 1918.

Pharmacist J. M. Bell. Relieved at the

Savannah Quarantine Station. Proceed to Norfolk, Va. Jan. 30, 1918.

Sanitary Engr. J. A. A. Le Prince. Report at Bureau for Conference relative to malaria. Jan. 30, 1918.

Sanitary Bacteriologist C. F. Butterfield. Relieved at Manhattan, Kansas. Proceed to Columbia, S. C., on special temporary duty. Feb. 2, 1918.

Special Expert W. C. Purdy. Proceed to New Orleans, La., for training in laboratory procedures relating to malaria. Feb. 1, 1918.

PROMOTIONS.

Pharmacist Cletus O. Sterns. Promoted and appointed a Pharmacist of the first-class, effective November 5, 1917. Pharmacist Walter H. Keen, promoted and appointed Pharmacist of the first class, effective December 31, 1917. Jan. 23, 1918.

COMMERCIAL SECTION

A MOVING WINDOW DISPLAY.*

(A Demonstration.)

BY OTTO RAUBENHEIMER.

This is not a paper but merely a demonstration. Like many discoveries, mine was brought about quite accidentally by being one of the few pharmacists in the United States who make their own milk of magnesia, which can be prepared for thirty cents a gallon, instead of thirty-five cents per 12-ounce bottle.¹ In the process, I used a syphon to remove the wash water. On one occasion the rubber tubing contained a little pin-hole. To my great surprise this little leak produced a peculiar phenomenon, *vis.*, air bubbles formed and were drawn down with the water, thereby producing a very striking effect.

This gave me an idea. I concluded to use this arrangement for a window display. In the rubber part of the original syphon, the little pin-hole got gradually larger and larger, until there was more air than water, and consequently the flow stopped. So I had to give the display up temporarily. I wondered how I could contrive to continue it, as it had proved quite an attraction. I found a way, and I have come here to show you just how it was done. The display was in my window for eighteen years and many people saw it. As the life of a patent is only seventeen years, I feel that I have kept the idea to myself long enough, and I am willing to part with it now for the benefit of the A. Ph. A. members, attending the Commercial Section at the Atlantic City Convention.

I have received inquiries about it from all over the United States. People wrote to me and asked me how it was done, and I told them that if they would come to Brooklyn I would show them.

All that it is necessary to use is a glass "Y" tube, which can be bought for about fifteen cents. On one of the upper ends of the "Y" tube I attach a short rubber hose, on which there is a metal screw compressor. This I can regulate by tightening it or gradually loosening it. This screw compressor costs twenty-five cents. The other upper end of the "Y" tube is connected with a piece of glass tubing which acts as the short leg of the syphon, namely, the one which sucks up the water. The lower end of the "Y" tube is connected with a long glass tube, the long leg of the syphon, which is the water outlet. I had glass tubing going all over the window, but I could not bring it all. I merely brought a few pieces of tubing to demonstrate the way the apparatus works. The more glass tubing you have the more of an attraction the display will be. I ran the tubing over signs in the window, and also connected it with a Liebig condenser, used to demonstrate the distillation process.

I will now explain how I made the action continuous. To connect the pieces of glass tubing, I use rubber tubing. At the outlet I attach another screw com-

* Delivered before Section on Commercial Interests, Atlantic City meeting.

¹ Proceedings A. Ph. A., Vol 55 (1907), p. 150.

pressor to regulate the flow. The syphon is best started without admitting any air. The way it is regulated now, there is but very little air admitted. It shows up better when the liquid is not clear like water, but colored. By slightly opening the screw compressor on top, you will see that a little air enters and comes through along with the water, thereby forming air bubbles. The size of these can be regulated by admitting a little more or a little less air. In the same way, the outflow can be regulated by the screw compressor, so as to make the water and air run through more slowly or faster. The larger and long air bubbles with their convex ends very closely resemble hard gelatin capsules.

The display in my window frequently attracted so many people that the police had to come and drive them away. They were all guessing what made it go. I had the "Y" tube high up in the window, so that it was concealed. When the water reservoir on top got empty, I would, of course, have to fill it again. Not wanting to be bothered with that, I connected it with a running stream of water by means of the faucet, which I turned so that the water would run in just as fast as it ran out. After that, I usually did not have to bother with it from the time I turned it on in the morning until night. I fixed it so that the bottle, which acted as the water reservoir, was about half full all the time. Of course, I had to keep my eye on it, as the water pressure sometimes varies.

I hope that this demonstration of a "Moving Window Display" will convince the members of the A. Ph. A. that even a little knowledge of physics and chemistry can be utilized to convince the public that your pharmacy is different from your neighbor's, who displays patent medicines, suspensories, dolls, or still worse, "apples."

ABSTRACT OF DISCUSSION.

J. B. THOMAS: The manufacturers of soda drinks are using the same idea. Two colored men were standing before the window in which this was shown in connection with the soda water, and wondering at the mysterious disappearance of the water, one said, "Say, John, where do you suppose that is coming from?" The other replied, "It is not so important where it is coming from as where it is going to."

R. S. LEHMAN: This idea is being used for advertising purposes in the shape of a glass sign. There is one now in New York, which has been there quite a long time. There are letters, forming the words "Havana Cigars," which run in a continuous glass tube. The end of the word "Havana" joins the end of the word "Cigars." There is always a little globule of air around the letter.

CHARLES H. LAWALL: I am wondering whether Dr. Raubenheimer ever had the experience of trying to syphon a liquid of lower density through one of higher. In a laboratory where I was once employed, we often had occasion to syphon liquids, and it was customary to fill the syphon with water before starting, and then immerse the syphon in the liquid to obtain the flow. On one occasion, chloroform was the liquid to be syphoned. The operator filled the syphon with water and immersed it in the chloroform. The chloroform came up to the top of the bend, but did not displace the water, but bubbles of chloroform went down through the water, just as the bubbles of air in the syphon of Dr. Raubenheimer.

OTTO RAUBENHEIMER: That is a new experience; of course, air is a good deal cheaper than chloroform.

SECTION ON EDUCATION AND LEGISLATION

ARE COLLEGES OF PHARMACY DEVOTING SUFFICIENT TIME TO DISPENSING?*

BY ARTHUR W. LINTON.

The Pharmaceutical Syllabus defines Dispensing Pharmacy as "the extempore preparation or compounding of medicine." The Syllabus states that "the minimum time devoted to this subject shall be sixty hours, which should be arranged to give a liberal number of hours for actual work in the compounding of prescriptions." It should be noted that according to the outline of the Syllabus many of the classes of extemporaneous preparations, such as ointments, plasters, and suppositories, have been taken up in the second year's work in manufacturing or galenical pharmacy, and typical preparations of each of these classes made by the student before he meets them in actual prescriptions. Furthermore, the Syllabus provides for a twenty-five hour course in Pharmaceutical Latin entirely aside from the dispensing course.

For the purposes of this paper let there be understood by Dispensing Pharmacy the extemporaneous preparation of medicine, including the study of such classes as pills, powders, and ointments; the consideration of the written prescription; the study of the great subject of incompatibilities; and the actual practice in dispensing physicians' prescriptions in the college laboratory.

The writer has devoted considerable time to study of the catalogues of the colleges of pharmacy of the United States with the view of learning how much time is set aside in the curriculum of the average school to the subject of dispensing. Several difficulties presented themselves in securing the desired information. It was found that a great many of the catalogues were exceedingly indefinite in their statements as to amount of time devoted in class-room and laboratory to prescription work. In some cases rather extravagant statements were made in regard to completeness of equipment and thoroughness of the course, but the reader was left absolutely in ignorance as to the number of hours per week given to the work, as well as to the number of weeks through which the instruction continued.

Another difficulty in making a fair comparison of the colleges in this matter was the great diversity in arrangement and grouping of the work. In some schools, for instance, the study of the classes of preparations commonly dispensed extemporaneously is first taken up in manufacturing courses, in other colleges the student apparently meets these for the first time in his dispensing course. In some institutions the curriculum provides a separate course in Pharmaceutical Latin, while in others whatever instruction in Latin is given is included in the dispensing courses.

Twenty or more colleges were found to make quite definite statements in their catalogues as to the time assigned to dispensing. It may be noted that most

* Read before the joint session of the Section on Education and Legislation, A. Ph. A., the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy, Indianapolis meeting, 1917.

of these are members of the American Conference of Pharmaceutical Faculties. Some of those making definite statements offer one course consisting of lectures and recitations and another of laboratory work; others combine lectures, quiz, and laboratory practice in one course. This is a minor matter; it makes little difference under what classification the work is given so long as it is given in sufficient amount and with proper thoroughness.

In regard to the amount of work in dispensing, it was found that among those colleges making reasonably complete statements there was quite a wide difference in time assigned. One college, so far as could be learned from its announcement, devoted only 32 hours to dispensing; at least three institutions were well above 200 hours. The average time devoted to lecture and class-room work in these twenty colleges is not far from 36 hours, the average time to laboratory about 72 hours. Among those colleges stating the value of their dispensing courses in terms of university hours of credit, the average was about five hours. Many at least of the twenty or more schools referred to above also include extemporaneous preparations in their manufacturing courses. If 108 hours, or thereabouts, is the average for those colleges making definite statements in regard to dispensing, it does not seem probable that the time given by other institutions will average higher.

It will be noted, then, that many of our American colleges of pharmacy are using for instruction in dispensing almost twice the minimum number of hours suggested by the Syllabus. Judged by this standard, these schools are doing all that could be expected. However, the writer is convinced that even 108 hours is considerably less than the time required to give adequate instruction in regard to the prescription and all that pertains to it.

Shall we consider first the class-room instruction, or what may be called the theoretical part of the work? The writer, from his own experience and observation, believes that this should include not less than 72 hours. He would suggest a course of one semester of 18 weeks, two hours per week, given to the study of the written prescription in all of its aspects, and to the various classes of extemporaneous preparations. Even if the student has studied these classes and made some typical members of each in previous courses, his knowledge of them at this time is usually quite elementary. Ample time is necessary for detailed consideration of special cases. The instructor may use a part of the time of this course for lectures, but a standard text-book on dispensing should be in the hands of the students, lessons be assigned for study, and much time allowed for quiz and discussion.

During the following semester 36 hours of class-room work should be devoted largely to the subject of incompatibilities. After a consideration of the general subject and of the various classes, the incompatibilities of the principal chemical groups should be taken up systematically. These should be illustrated by numerous prescriptions, which, if possible, should be thrown upon a screen for comment. A part of the time of this semester should be reserved for the more important of the newer remedies, with suitable discussion of their composition, physical and chemical properties, and incompatibilities.

The laboratory work in dispensing should run concurrently with the class-

room work. Following closely on the discussion of each class of preparations in lecture and quiz, this class should be taken up in the laboratory and numerous typical prescriptions of the class dispensed. Using ointments as an example; there should be prescriptions illustrating the incorporation of an insoluble powder, of a water-soluble solid, of an oil-soluble solid, and of a soft extract; ointments made with various bases and combinations of bases; ointments made by mechanical incorporation and ointments requiring fusion; ointments that can best be prepared on a slab, and ointments requiring levigation in a mortar; ointments dispensed in jars, and ointments dispensed in collapsible tubes. At least twelve or fifteen ointment prescriptions should be dispensed to cover these various cases. Some time can be profitably spent in the microscopical examination of samples of the ointments prepared, in order that knowledge may be gained of the efficiency of various methods. All of this will require time. If the prescriptions are so chosen that each one presents some new problem or difficulty to the student, he can not be expected to compound them with the speed of an experienced dispenser. He should be required to label and wrap each prescription as in actual practice. For this semester's work he should have not less than four hours per week in the laboratory, or a total of 72 laboratory hours.

During the second semester, while the subject of incompatibilities is being taken up in lecture and quiz, a great many of the prescriptions dispensed should be chosen to illustrate the principles discussed. The student will need time to experiment with different methods of overcoming certain difficulties. In some cases it will be profitable for him to compound a prescription by two or three different methods in order to compare results. Many prescriptions should be set aside and observations taken at intervals in order that color changes and precipitations may be noted if such occur. Of course it will be quite impossible for the student to experiment with all of the possible incompatibilities, but it is only by doing a large amount of such work that his resourcefulness is developed and he becomes fitted to cope successfully with the innumerable difficulties which arise at the dispensing counter. During this semester the student should be encouraged to bring in difficult or unusual prescriptions received in the store in which he is or has been employed, and should be given opportunity to experiment with methods of compounding the same under the advice of the instructor.

The prescriptions assigned during the second semester should include many of the important new remedies. The various organic compounds of silver, for example, present their own peculiar problems, and some of these compounds are very commonly prescribed. The subject of sterilization is assuming such tremendous importance that no dispensing course is complete which does not devote considerable time to it. Can anything less than 72 hours of laboratory work be considered sufficient for the second semester's course in dispensing? We would suggest, therefore, 72 hours of class-room work and 144 hours of laboratory practice, or a total of 216 hours, as the minimum time for dispensing work in the college course.

Some one objects: "Oh, it is impossible in the college prescription work to familiarize the student with all of the difficulties which may arise, we can teach him only the broad principles." Quite true. The writer is perfectly aware

that if all of the time of a two-year course were devoted to prescription practice, so infinite is the variety of possible combinations, that even then the young pharmacist would probably encounter in his first week of store experience something new and puzzling. No matter how long the school course or how extensive one's practical experience, it is only by reasoning out each new difficulty as it arises that one becomes a safe and successful dispenser. However, the college instruction in dispensing should be sufficiently extensive to familiarize the student with most of the typical cases, and, furthermore, to give the embryo pharmacist confidence in his own ability. Let a student make two or three emulsions, and it is quite probable that he will go out regarding emulsions as an unfamiliar and a treacherous class of preparations. If he happens to encounter an emulsion prescription somewhat different from those he dispensed at school, he is afraid of it, and will probably make a failure in compounding. Let him dispense enough emulsions in the school laboratory to come to a thorough understanding of the principles of emulsification, and he will receive emulsion prescriptions with confidence and even with pleasure, for what is of more satisfaction to the pharmacist than to dispense a well-made emulsion?

Doubtless one of the reasons that more time has not been devoted to prescription laboratory work in our colleges is the high cost of this instruction. The laboratory equipment, if at all adequate, is expensive. The cost of material used, if representative prescriptions are assigned, is considerable. Further, if the class is divided into small groups, as it should be for this kind of work, a great deal of the instructor's time is consumed. Hence the tendency has been to use most of the student's laboratory time in courses which required less expensive equipment and material, and in which the instructor can oversee the work of a larger group of students. Let us hope that the condition which has almost necessitated the neglect of so important a part of the curriculum will be gradually overcome. State authorities and legislative bodies will slowly come to understand that instruction in pharmacy, as in medicine, is expensive, and will become willing to provide the funds necessary for equipment and instruction. Institutions not under state control will find other means of adding to their incomes.

Another reason that dispensing work has been somewhat neglected is the difficulty of finding time in the crowded curriculum of the two-year course for all that should be done. While the writer is inclined to believe that a small amount of the time now commonly given to chemistry might better be devoted to prescription work, he will not contest this point, for it is quite certain that our students are not giving too much time to chemistry. Qualitative analysis, especially, is a splendid preparation for the study of incompatibilities. It is by the extension of the pharmacy course to three years that we must hope to find the additional time so urgently needed for a proper study of the prescription and a reasonable amount of practice in dispensing. The writer would urge upon those faculties which are introducing a three-year course the serious consideration of assigning more time to prescription work than was possible in the two-year course.

We will all agree that in compounding physicians' prescriptions "just right," the pharmacist is rendering to the public one of the highest services which comes within his sphere of activity. Why, then, should the preparation for dispensing

not be given a more prominent place in the education of the pharmacist? More emphasis on this work in our colleges, better equipment and adequate time for instruction, will mean that our college graduates will be better prescriptionists. It will mean more young pharmacists entering business with the determination that no matter what side-lines may be introduced, their stores will be prescription stores. Better prescription service will certainly mean more prescriptions written; it will go far to correct the omnipresent evil of the dispensing doctor. The writer believes that as pharmacists, whether practitioners or teachers, we should spend less time in bewailing the fact that physicians are not writing prescriptions, and more time in preparing ourselves to give dispensing service of the highest possible order.

Let all recognition be given by our colleges to the commercial aspects of pharmacy. Let courses in commercial pharmacy, store-management, drug-store accounting, and show-card writing be introduced and strengthened. The three-year course should give time for these also. But let us not neglect to provide for more instruction and better instruction in dispensing.

UNIVERSITY OF WASHINGTON,
COLLEGE OF PHARMACY.

PRIVATELY OWNED SCHOOLS AND COLLEGES OF PHARMACY.*

BY EDWARD SPEASE.

This subject is similar to one upon which I offered a paper one year ago. My paper at that time was either too insignificant to merit recognition, or every one endorsed my opinions. I can hardly credit the latter statement as being a fact, and so must content myself with the former one, and try again.

I am not trying to find fault with the views of other people—many of whom have had many more years of experience in educating pharmacists than have I—but as I gain age and experience, the questions present themselves to me—Is pharmacy worth while? and, Does every class of pharmacists make the proper unselfish effort to build up pharmacy? and, Are they all proud of the profession they have chosen?

I ask myself, Why is the pharmacist often a man of small vision? Is it his multitude of small sales that makes him so? Why do the majority of pharmacists—and often now, the layman—make the statement: "Ethical pharmacy is a thing of the past; I must develop the commercial side of my store." By the commercial side is meant, I suppose, the patent medicine business, sundries, cigars, candy, etc., as well as the various lines of preparations put up by various pharmaceutical houses whose sale has made some of these manufacturers immensely wealthy.

The tendency, generally speaking, or at least in the majority of cases, is to draw away from prescription work and the manufacture of our own preparations

* Read before the joint session of the Section on Education and Legislation, A. Ph. A., the American Conference of Pharmaceutical Faculties, and the National Association of Boards of Pharmacy, Indianapolis meeting, 1917.

and compounds—even to draw away from the manufacture of U. S. P. and N. F. preparations.

Why do our leaders in pharmacy—many of them—advise us to associate ourselves with the patent medicine interests, yes, even with the vendors, for mutual self-protection in legislation? It must be because we are weak in ourselves.

Why are we not aligned with and on an equal footing with the best in the medical profession? Is the fault altogether that of the medical man?

Why have many of our pharmaceutical manufacturing houses made, and even solicited the making of patent and so-called "fake" medicines?

They will answer, of course—"to prevent these fellows from manufacturing them themselves, and likewise, from an altruistic standpoint, so that these medicines may be compounded by experienced pharmacists, and the danger to the public minimized."

Why do many of our manufacturers sell directly to physicians? Are they fearful lest the doctor manufacture for himself? Why is the physician merely a dispenser of pills and tablets—"canned medicines?" Why does the manufacturer find a market for solutions of cocaine ready for use by the doctor? Why does he make dispensing tablets?

Do our manufacturers all work for the best interests of our pharmacy schools, or do any of them ever interest themselves or permit their scientific men to teach in private schools, run solely for profit, Y. M. C. A. schools of pharmacy, and the like? If they do, does this help pharmacy, and help it ethically?

I have heard many men make the statement that they would be glad if never a prescription came in to them, because their help could make more money for the firm on the floor selling patents.

Why is it that of the many state boards of health commissions, committees and the like on health matters, existing and being appointed in our various states at all times, even those now for National Defense, the pharmacist is never regarded as a necessity? The veterinarian and the dentist, in these latter days, and always the physician—are chosen to serve the public in these groups.

We clamor at times for recognition of the pharmacist, but do we ever get behind the slogan "for the good of the public health?"

Why are not all our pharmaceutical associations in the same chain, and why do they not exist for the same purpose—the good of pharmacy and the uplift of the profession?

Would not the combined money spent by the N. A. R. D., the A. Ph. A., the jobbers and the manufacturers, go a long way towards getting proper legislation for us and placing us once more on an ethical footing?

I have heard one member of the Revision Committee of our own U. S. P. IX say substantially that medicine is now an exact science, and that only known chemical compounds will be used in the future; that the field for pharmacy is practically eliminated, and that mixtures like tinctures and such preparations of vegetable drugs will soon pass out of use.

We hear the manufacturers say not to make any of our own fluidextracts, tinctures and things that they make; that the retail man's time is too precious to devote to such things, and besides, the trained scientific man in the manufac-

turers' laboratory is better fitted to prepare these things. This statement also came from another member of the U. S. P. IX Revision Committee.

Now, what does all this have to do with "Privately Owned Schools?" Just this: Is it the fault of these schools who first educated our pharmacists and whose graduates are the most active men in our profession to-day? Is it the fault of the university schools who came later, and the majority of whose graduates are comparatively young men?

I ask these questions for information only, and not to criticize. I feel it the duty of our Association to investigate these conditions, even to the point of banishing from our ranks individuals—if there be any—who stand opposed to the uplift of pharmacy.

Our schools should be the places where our pharmacists are trained, and there they should imbibe true pharmacy and a desire for better things. Do they?

Can a pharmacy school exist on tuition alone? Must it not have a large endowment, or receive State aid? I should like to know what it costs to educate a pharmacist, giving him the meagre training we now do. I have it on good authority from one of our medical schools, that the tuition per year is \$125.00, but the cost to the school is \$800.00 per student. Does it cost that to train a pharmacist?

Professors of pharmacy should be so trained that they can command big salaries, and these salaries should be forthcoming to them. Why do I harp on this old string? Because if properly paid, there would be enough of them so they could devote time to research, and not have to turn the eye toward commercial pursuits. Can the time ever come when private schools will ever approach this ideal? Never.

It has been said that universities will not recognize the merits of our schools of pharmacy. This is really so, in some cases, now. We can obviate these conditions by placing pharmacists upon university boards that control these matters, and then our university schools will be provided for properly.

Do our private schools, if there be any, really stand for better things? Is it not time that our Association as a whole desist from merely appointing a small committee on education and legislation—which of course go hand in hand—and really do something more in the matter of proper *education* for the pharmacist? *Legislation* will then come.

I ask you older men if it is too late to begin?

I did not write this paper in the spirit of fault-finding and scolding, but for the sake of receiving answers to my questions, if there are any.

CLEVELAND SCHOOL OF PHARMACY OF
WESTERN RESERVE UNIVERSITY.

WOMEN'S SECTION

WOMEN'S SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION.*

MINUTES OF FIRST SESSION.

The Sixth Annual Session of the Women's Section of the American Pharmaceutical Association was called to order in the parlor of the Claypool Hotel, Indianapolis, Indiana, Wednesday, August 29, 9.30 A.M., by the President, Mrs. E. A. Ruddiman.

Rev. Dr. Allan B. Philpott invoked the Divine blessing. Following the inspiring words of trust and faith in Divine guidance during the progress of the Convention, the meeting was entertained by Mr. Arnold Spencer, who sang three numbers—Love Song, by Nevin; At Parting, by Rogers; Over the Desert, by Kellie. Mr. Spencer was accompanied by Mr. Arnold Coppock at the piano.

In behalf of the pharmaceutical organizations of Indianapolis, Mrs. F. R. Eldred extended a glad welcome to the members of the Women's Section in the following well-chosen words:

Madam President, Ladies of the American Pharmaceutical Association.—In behalf of the hostess city and the local organizations, I extend to you a most cordial welcome. We trust the few days spent in our winter capitol will prove pleasant as well as profitable days for all in attendance.

Unfortunately, the annual convention of the American Pharmaceutical Association is held during our warmer months; but whether we meet in Nashville, the attractive and picturesque capitol of Tennessee or in Atlantic City, a delightful resort of the great American public in summer, we return to our homes, I feel assured, benefited in many ways. How sweet, too, the renewal of old friendships as well as the forming of new ones!

We have with us women pharmacists, pharmacists' wives and daughters, all interested in the growth and promotion of one of the greatest factors in the life of the nation, and certainly of vast importance in the great war of to-day in which we are all so vitally interested. Therefore, we women of the American Pharmaceutical Association should unite and, by coöperation with our government, succeed in doing our bit, and more, for coöperation is the keynote to success.

In behalf of the Women's Organization of the N. A. R. D., Mrs. F. H. Carter extended a welcome to all:

Madam President, Ladies of the Women's Section of the A. Ph. A.—The Women's Organization of the National Retail Druggists, with a full heart and open mind, is glad to welcome you and to make you feel that in coming to Indianapolis you have made no mistake. Hoosier hospitality is of a kind that has no competitor. The joy of meeting you overlaps all feelings of formality. We are just one great big family. We welcome you.

In behalf of the state organization, a welcome was to have been extended by Mrs. F. W. Meissner of La Porte, but a disastrous fire which damaged their business place the day preceding this meeting, detained her and she was unable to be in attendance but sent a lettergram of regret and greeting.

The President then called the Second Vice-President, Mrs. George M. Beringer, to the chair during the reading of the President's address.

The President, Mrs. E. A. Ruddiman, then read as follows:

THE CHAIRMAN'S ADDRESS.

On behalf of the members of the Women's Section of the American Pharmaceutical Association, I wish to thank the ladies of Indiana and Indianapolis for their very cordial welcome. We are anticipating a delightful stay in your city and the few hours already spent here show that we will not be disappointed.

* Papers will be printed apart from the minutes of the Section.

And to you the members of this Section, I bring greetings and good wishes. We are glad to welcome you and hope that your pleasure and profit will be so great, you will always desire to attend our annual meetings. We wish to bespeak your cordial coöperation in the work of our Section, and ask that you will attend the sessions, both business and social. We would welcome any suggestions making the Section more efficient or its meetings more profitable. By all working together we hope to make this the most interesting meeting the Women's Section has ever held.

I might speak to you about many things of interest to this Section, urging you to keep up agitation for shorter hours in drug stores; to work for higher standards of education for pharmacists; to secure uniform requirements for education and Board examinations, and reciprocity among the different states; to seek better recognition for pharmacists in the Army and Navy of the United States. All of these are lines of endeavor worthy of the effort of this Section and would tend to elevate pharmacy. And let us not forget to secure new members for the Association. That is a duty we have always with us.

But there is one line of work I wish to emphasize and it is particularly appropriate to do this, when so many young men are being called to leave their work and women must take their places. Pharmacy is a profession well fitted for women and the members of this Section would do well to stress that fact and try to induce young women, seeking work along professional lines, to adopt it. On all sides pharmacists are calling for clerks and surely young women who are prepared may secure positions if they so desire. There will be an increasing demand for pharmacists in hospital and Red Cross work. Pharmacy is a profession demanding special training, not a business which may be acquired in the office or at the counter. So many young women should this year begin their college work. This is in line with President Wilson's suggestion that all young men and women continue their professional training, that they may be ready when the call of duty comes.

Before closing there is one message I want to give you, even though it is not connected with pharmacy. I would like to give it to every group of intelligent women in the country, regardless of the circumstances which bring them together. I can not reach all women but I can reach you and I ask you to pass the message on. It grows out of the awful conditions in which the world finds itself to-day.

Broadly speaking it is only within a few decades, that women have begun to be educated or to think for themselves. Before that they accepted the dictum of the ages as to the conditions of life, as to what was right or necessary. They accepted life as it was made for them and endured hardships and suffering as best they might. And now we find ourselves in the maelstrom of this awful war. Whatever degree of responsibility we may have, we can not now escape. "The only way out is straight through," as I heard one man say. We accept our duty to do everything to end it, as soon as possible, in the right way. We will give our boys to be soldiers and our girls to be nurses. We will sew and knit, economize and conserve the resources of the country. We will go on with life and endure the suffering and agony, but we rebel against it. Women all over this world to-day are in rebellion against war as they never were before.

We have always been told that war is necessary, even ennobling. To-day we are questioning those statements and we have about come to the conclusion that, unless a way can be found to get along without war, life is not worth living and the sooner the human race dies out the better. If when this war is over, there is nothing to do but get ready for another, why keep on bearing and rearing children; why try to discover the most healthful conditions for their life and the best form of education for them. It will only be used in devising more fiendish forms of torture for killing their fellow beings.

No, we must start out with a different thought, not that war is necessary and we must be prepared for it, but that there is a way to get along without war and we must find it. Now while we are in the midst of this awful struggle, we must do everything to help, but while we are working let us also be thinking that when the time comes, we may be ready to join with thinking women all over the world to put an end to war. Perhaps that is the reason we have been given these larger opportunities of education, experience and influence. "Who knoweth whether thou art come to the kingdom for such a time as this."

Complying with a motion by Miss Cooper, duly seconded and adopted,

Mrs. Beringer named Mrs. W. C. Anderson, Mrs. W. C. Bartholomew and Mrs. C. Blakeslee a committee on President's address, instructing the committee to report at the meeting Friday afternoon.

Greetings from the following officers and members who were unable to attend were read by the Secretary: First Vice-President, Mrs. E. G. Fine, Mrs. Elizabeth Kelly, Miss Bertha Ott and Mrs. Mary E. Apple, Treasurer.

The following committees were then appointed by the President:

Nominating Committee: Mrs. H. M. Whelpley, Chairman, Mrs. E. G. Eberle, Mrs. O. F. Claus, Mrs. E. W. May and Mrs. F. H. Carter.

Resolutions Committee: Mrs. W. L. Dewoody, Chairman, Mrs. Charles Holzhauser and Mrs. Alfred Husted.

The committees were instructed that reports should be ready for the Friday afternoon session.

The annual report of the Secretary was then read by Mrs. Kenaston:

SECRETARY'S REPORT.

Madam President, Officers and Members of the Women's Section of the American Pharmaceutical Association.—With a sincere sense of gratitude for the privilege of serving this organization, I herewith render an account of the stewardship which you have so generously bestowed upon me.

It is with the keenest appreciation of the confidence expressed by this body one year ago at the Atlantic City meeting, when you elected me Secretary of the Section, that I submit to you the following statement of the duties performed during the year.

All requests for assistance in gathering the necessary materials and data for the publication of the minutes of the Atlantic City meeting, sent by the editor of the American Pharmaceutical Association JOURNAL were promptly complied with. We are indebted to the editor of the JOURNAL for special efforts to publish the minutes in an attractive manner also for the excellent page of photographs of the elected officers. Pursuant to the recommendation of President Mrs. G. D. Timmons, reprints were ordered, amounting to two hundred copies, from the February 1917 issue of the JOURNAL at a cost of \$10.90, which amount includes express on same. Copy of bills for same is herewith presented and made a part of this report. Packages containing a number of copies of the reprints were mailed from the Secretary's office to the chairman of each committee with a letter advising that more were available if desired. Not any requests for additional copies have been received.

At the Atlantic City meeting your Secretary was instructed to issue a letter advising members of the American Pharmaceutical Association that the women of their families thereby were eligible to membership in the Women's Section. This request was complied with and with the kind cooperation of your President and the generous courtesy of the Treasurer of the American Pharmaceutical Association, a form letter was sent out from the Secretary's office and also as an enclosure with the receipts from the Treasurer's office to all members of the Association. This letter was processed upon the letterheads furnished to the Secretary of the Women's Section, copy of which is herewith presented.

The results of this work and the experience gained leads your Secretary to conclude that it was a worth while effort though not followed by the number of replies that was expected. I would further express the opinion that should it be the pleasure of this meeting to direct that a similar plan be pursued the coming year, more definite results may be apparent and the enthusiasm gained during 1916-17 through this procedure will not be lost but rather multiplied as this and future years advance.

Copy for letterheads and envelopes were furnished printers and order placed as per attached receipted bills, amounting in all to \$18.54, with the additional cost for express of \$0.88, making a total of \$19.42. This stationery was distributed to the elected officers and chairmen of committees. From letters received and the necessity of changing about in quantities to make the amounts meet the requirements of the various officers, I believe the amount ordered was practically the correct number that ordinarily would be used each year.

Your Secretary was also directed to write each newly elected member of the American Pharmaceutical Association advising the women members that by virtue of their membership

in the A. Ph. A. they also were members of the Women's Section. Letters were sent to those joining earlier in the year, extending the cordial and fraternal greetings of the Section and inviting their coöperation and assistance in the work of the Section. Letters were also sent to the newly elected men members as their names appeared in the Council letters printed in the *JOURNAL*, advising that the women of their families were entitled to membership in the Women's Section providing they may elect to be so recognized. Cordial fraternal greetings were extended together with an invitation directed to the women, to attend the next annual meeting and become active members in the Women's Section. The rush of business incident to the demands for time to be given on the altar of patriotism, prevented the continued issuing of the letters as mentioned above and for this reason not all new members were thus welcomed.

Correspondence with the secretaries of state boards of pharmacy with a view to collecting data regarding women pharmacists and the promotion of the objects of the Section in so far as we may be in a position to remedy existing unfavorable conditions relating to women in the profession, was also directed by the Atlantic City meeting. The series of letters addressed to the secretary of each of the several state boards of pharmacy brought replies from almost every state and no doubt those who have not reported at this date will do so in a short time. Many kindly advanced ideas for the improvement of the conditions now prevailing in the profession—the main thought resulting from the perusal of the letters is that we must have a campaign instituted, directed in such a manner that shorter hours will be conceded.

More especially should we plead for the sacredness of the Sabbath and relief from commercial duties for that day. Neither you or I could conscientiously encourage our own son or daughter to seek an education in a profession that bids fair to deny him or her the right to recognize the Divine command "Remember the Sabbath day to keep it holy" or do we wish to invite such influences as extended from our places of business. Will we assist in the influences that may speedily bring to us the acceptance by the public that the drug stores close their places of business at seasonable hours and on the Sabbath day?

A number of the replies called attention to the value of the education of young women to fill the positions made vacant by the young men who have responded to the call of our country and have patriotically enlisted in the cause of justice and freedom. The desirability of young women entering the profession could be made a proper subject for discussion and some means decided upon that would be effective in bringing this matter to the attention of the young women now of the age when selections are to be made that will decide their life-work. The data collected will prove of inestimable value to the Secretary's office in the event that it is the pleasure of this Section to further direct that the objects of our Section may be promoted and that we unite to study the conditions surrounding women in the profession with a view to increasing its value as a profession for women. The value of this investigation would be enhanced if further communication be directed to all registered women pharmacists during the coming year. The replies to the various communications could be made the basis for specific work; particularly would this be true if combined with the information gleaned from the secretaries of boards of pharmacy. We are justified in assuming that their extended experience would give us the correct ideas from which we may form conclusions as to what may be the greatest needs and supply that need so far as may be possible.

Inasmuch as South Dakota is the only state wherein legislation has been enacted providing that all registered pharmacists become active members of the State Pharmaceutical Association immediately upon successfully complying with the law governing registration and remain active members during the time their certificate of registration is in force, and your secretary is a member of that Association with the printed records of same at hand for reference, but little additional information could be secured by addressing the secretaries of the various state associations.

The letters addressed to the deans of Colleges of Pharmacy and other colleges maintaining a Department of Pharmacy met with the most generous, prompt and complete replies—lists of graduates with their present addresses, professional positions, etc., were received by this office and are now on file for such use as the Section may direct. Many added suggestions for advancement of the profession, all such suggestions, we have the right to assume, are the result of long years of thought and experience and hence should be regarded as practical.

All the correspondence resulting from the above communications is on file in this office,

also lists of the names of registered women pharmacists prepared in card index form and furnished the present Secretary by your former Secretary, Miss Anna Bagley.

The various journals devoted to the interests of pharmacy have commented editorially from time to time throughout the year on the continued efforts of the Women's Section. We trust this courtesy on the part of the editors will result in the favorable publicity desired by the Women's Section and that our aim to advance the interests of the parent organization together with the special purposes of the Women's Section may be a future development.

Following the direction of your President, the office of the Secretary furnished announcements of the coming meeting of the Women's Section for the July issue of eight pharmaceutical journals throughout United States and also in Canada, directing to the different localities so far as practical; all journals generously gave their valuable space to the announcement as furnished. Tentative programs for this meeting were furnished direct to the A. Ph. A. JOURNAL for the August issue by the Chairman of the Executive Committee.

I have written 3,814 letters and 170 post-cards, in conducting the necessary work of the office. Sometimes the answers to your letters may have been slow in reaching you because of absence from home, but I have replied to every letter received.

Fraternally submitted,

JEAN MCKEE KENASTON, *Secretary*.

The motion prevailed that the Secretary's report be accepted and that same be referred to the committee on addresses.

The Treasurer, Mrs. Franklin M. Apple, submitted a written report, showing the sum of \$9.00 in her hands.

The motion prevailed that the Treasurer's report be accepted and placed on file.

A paper by Mrs. W. B. Philip, entitled "Problems in the Druggist's Home," was read by Mrs. C. A. Dye. (To be printed.)

Very interesting discussions upon this paper were offered by Mrs. Timmons, Mrs. Dewoody and Mrs. Thatcher. Many interesting features and helpful thoughts were advanced which were at once greatly enjoyed.

Miss Zada M. Cooper read a paper upon the subject "Teaching the Public" (see p. 177, February issue).

Excellent discussion of the subject was opened by Mrs. Godding, followed by Mrs. Timmons and others.

Dr. F. J. Wulling, President of the A. Ph. A., honored the Women's Section by a personal visit at which time he addressed the meeting as follows:

REMARKS OF PRESIDENT F. J. WULLING.

I have ventured into your session to bring you the personal endorsement of the President of the Association and to give evidence of my interest in your work.

I will speak only briefly because I will be due in another section presently. My purpose is merely to encourage you with what little my endorsement of your work would mean to you. The Association is very grateful for your cooperation. As Mrs. Godding has just said, there is a distinct place for women in pharmacy. The influence that they may exert upon pharmacy may be otherwise than purely pharmaceutical. There is the refining and affirmative influence upon the men pharmacists of the happy-home makers and of the sweethearts and of the sisters. Then there is the active participation in the profession, and in that respect the women are increasing their contributions toward the sum total of pharmaceutical development and progress, and for that we men are very grateful.

As I have tried to point out a number of times at this convention, we are really in a critical period, pharmacy in America is in a critical period. Possibly I look upon the matter more seriously than others do because I have put a good deal of study upon it and have endeavored to find remedies. I see many difficulties that before were not apparent to me. We must think of remedies and I have suggested a few. Besides remedies we need help and the kind of help that comes from the women in pharmacy is of the affirmative kind, the uplifting kind. The women in pharmacy create, wherever they are, a splendid atmosphere and environment; they elevate the

surroundings by their presence. Aside from that, they have shown that they have real capacity for professional pharmaceutical service.

I am a teacher and as such help train young women in pharmacy and know how splendidly they take hold of the work and how conscientiously they work. I do not want to make a comparison that would be unfair, but I can say consistently the young women students are as a rule more earnestly devoted to study than the young men are. The young men tell me they have greater interests, wider circles of activities, and a good many other reasons for their lesser application.

There was a time when women pharmacists were looked down upon. I remember that time very distinctly when it was generally held that women had no business anywhere than in the home. Those times are past. Men have come to recognize that women have made places for themselves elsewhere as well as in the home. I feel, as I think you all do, that woman's first place is in the home, but there are other places as well for her. You have chosen a very good other place. I am one of those who claim that women can be in both places. You here assembled and your absent associates of the Section are doing a very splendid work, and as President of the Association and personally, I congratulate you upon the fine work you are doing in the Association and out of the Association.

The President extended the thanks of the Section to Dr. Wulling for the courtesy which he had extended, also for the kind words of encouragement and commendation for women in pharmacy.

The President then asked for reports of committees.

Mrs. John Culley, chairman of the Outlook Committee, was not present but submitted the report of the committee which was read by the Secretary.

REPORT OF THE OUTLOOK COMMITTEE.

Madam Chairman and Members Women's Section, A. Ph. A.—The chairman of the Outlook Committee has the pleasure to report that during the past year communications were addressed to each member of the committee and to others interested asking for suggestions that would be of benefit to the future welfare of the Women's Section.

A number of replies were received with various suggestions. One that may be of great value came from Mrs. Claire Albert Dye in which she reports that the women of Columbus, Ohio, interested in pharmacy, have organized a Women's Pharmacy Club for the purpose of uniting more closely their families in a social and business way. If the example set by the women of Columbus could be carried out by the women of other cities and amplified in state associations, then the women of pharmacy would come nearer understanding the aims and objects of the Women's Section of the A. Ph. A. as set forth in our constitution and outlined in the bulletin sent out by President Ruddiman, date of January 22, 1917.

Each year brings us nearer the accomplishment of the task of uniting the women of pharmacy. The outlook for the coming year seems to forecast more and more responsibility for women in all walks of life and to the women of pharmacy in particular will be afforded many opportunities to enter actively into business thereby serving themselves as well as their country.

Your Outlook Committee can make no better recommendation for the coming year than that the information conveyed in President Ruddiman's bulletin be placed annually before every woman who is eligible to membership in this section.

Respectfully submitted,

ELIZABETH CULLEY, *Chairman.*

Upon motion of Mrs. Charles Holzhauer, duly seconded, the report of the Outlook Committee was received and placed on file. The motion offered by Miss Cooper and seconded by Mrs. Timmons prevailed, that the recommendation included in Mrs. Culley's report relative to letters to be sent new members, shall be followed during the present year. The Secretary was instructed to continue the letters as in the past year; similar to the letters issued by the Section during 1916-17.

Miss Anna Bagley, General Chairman of the Membership Committee, not

being present, submitted the report for members in the A. Ph. A. which was read by the Secretary.

REPORT OF MEMBERSHIP WORK.

Your Chairman sent out 200 letters to the list of names in the file, these being selected as to territory within a reasonable radius of Indianapolis.

The result was three memberships and a number of letters returned unclaimed. The new members thus secured are: Miss Julia Emanuel, Fort Wayne, Ind., who owns and operates her own store; Miss Leafy A. Sauer, Pittsburgh, Pa., pharmacist at the City Hospital; Miss Alma F. Berhkersman, Cleveland, a practicing pharmacist.

In addition Mrs. Timmons secured two members for which our Section gets credit, making a total of five members.

The letters returned will be used to correct the files and a duplicate of the correction furnished the Secretary for her files.

In addition the Chairman wrote quite a number of personal letters in regard to membership.

While this is not a very flattering report, it has enabled the Women's Section to pay its own way again, as our appropriation from the A. Ph. A. was but \$25.00.

It is suggested that if these three women members are in attendance, they be specially welcomed to the Section. The expense of the letters was taken care of by the General Membership Committee.

Respectfully submitted,

ANNA G. BAGLEY, *Chairman*

Miss Zada Cooper moved the adoption of this report which was duly seconded and carried.

Mrs. G. D. Timmons, chairman of the Executive Committee, reported as follows:

REPORT OF EXECUTIVE COMMITTEE.

Madam President and Members of the Women's Section of the American Pharmaceutical Association.—

The Executive Committee believe that a detailed report would not be necessary or even desired at this time. We therefore respectfully submit the following:

During the year we have endeavored to interest ourselves in a general way in the activities of our Section—keeping in touch with the work of the officers as well as with the work of the various committees.

In view of the fact that the demands on women's time are greater than ever before it is gratifying to note the gradual increase in the activities of the Women's Section.

Approximately 150 personal letters were written and a reply received in every case where a reply was at all necessary, with possibly one exception.

The principal endeavor of our committee centered around the program. Valuable assistance was rendered by the former chairman of this committee, Miss Cooper, and by Miss Bagley, the former Secretary. The present efficient officers have also been very helpful in this work.

To all who have had any part in the preparation of the program we wish to express our appreciation.

[Signed] ADELINE GODDING,
CLARISSA ROEHR,
CECELIA M. TIMMONS, *Chairman*.

Mrs. H. M. Whelpley moved the adoption of the report, which was duly seconded and carried.

Mrs. J. G. Godding proposed that the Section send a letter of greeting to Miss Anna G. Bagley, the former Secretary, expressing regret because of her absence. To this the meeting most cordially assented.

Mrs. Godding spoke in part as follows: We cannot be too grateful that we had brought to us the most efficient Secretary who is now with us, and we hope she will long continue. But for one who stood in the first days of this Section, who realizes as no one else, perhaps, can quite realize, what Miss Bagley was to

us then in those days. After we had been invited to become a Section we met with obstacles and difficulties and Miss Bagley, although occupied in a very prominent position, and obliged to give much time to her own duties, did such great work for this Section, I feel that we should not forget her, and I move that we send a most cordial letter of greeting to her and that, further, we express our deep regret that she is not able to be present with us.

Mrs. Godding's motion was duly seconded and carried. The Secretary was instructed to write above letter.

Two of the former Presidents of the A. Ph. A. having been called by death, it was the sense of the meeting that letters be written the members of the bereaved families, expressing the sympathy of the Section. The motion of Mrs. Whelpley, duly seconded, prevailed and the Secretary was instructed to convey to Miss Diehl, daughter of ex-President Diehl, the kind interest and sincere sympathy of the Women's Section. Further that similar letters be sent to Miss Alpers and Mrs. Alpers, daughter and the widow of ex-President Alpers.

Upon motion duly made, seconded and carried, the first session adjourned as a business meeting until Friday, the program for the interval to consist of a series of entertainments provided by the hostess city.



SOME MEMBERS OF THE OFFICIAL FAMILY OF THE WOMEN'S SECTION, A. PH. A.—Upper row, left to right: Miss Zada M. Cooper, *President*; Mrs. Jean M'Kee Kenaston, *Secretary-Treasurer*; Mrs. E. A. Ruddiman, *Retiring President and Member of Executive Committee*; lower row, left to right: Miss Anna G. Bagley, *Chairman Membership Committee*; Mrs. Geo. D. Timmons, *Member of Executive Committee*; Mrs. John Culley, *Chairman Outlook Committee*.

ENTERTAINMENT FEATURES.

Wednesday afternoon the members of the Women's Section were tendered a most delightful entertainment when the musical program arranged for their pleasure was given in the Louis IV parlors of the Claypool Hotel; Mrs. Spencer and Mr. Taylor each gave several most pleasing numbers—their voices are rare and selections of songs excellent. Mr. Coppock gave several splendid piano selections all of which were greatly enjoyed.

Following the musical program, a very enjoyable reception was given the guests of the afternoon with the Indianapolis ladies as hostesses.

Thursday, August 30, the members of the Section were the guests of the local people and were taken for a long auto ride including many places of interest and beauty in and near the city, the automobile party leaving the Claypool Hotel at 9.00 A.M. and returning in time for the ladies to be in readiness for an elaborate luncheon at which they were the guests of the local organizations. Lunch was served in the Florentine Room of the Claypool Hotel at 1.00 P.M. The room was beautifully decorated in summer decorations and every feature was most pleasing.

Thursday evening, August 30, in common with all members of the A. Ph. A., the members of the Women's Section were the guests of Messrs. Eli Lilly and Company at their Pharmaceutical Laboratories. Automobiles were provided for conveying them to and from the laboratories. While at the plant the visitors were conducted through the entire buildings and factories, which, by special arrangement, were operating throughout. Guides accompanied the visitors and gave careful and complete explanations of each step in the various lines of manufacturing of interest to the pharmacists. After making the rounds of sight-seeing, delicious refreshments were served. Music was provided as a further feature of entertainment.

MINUTES OF SECOND SESSION.

The second business session of the Women's Section of the American Pharmaceutical Association was called to order by the President, Mrs. E. A. Ruddiman, at 2.00 P.M., Friday, August 31, 1917.

Mr. Taylor entertained the meeting with two selections. He sang "Stars of the Desert," by Woodford-Finden, and "You Are All That Is Lovely."

Dr. C. B. Jordan of the Purdue University addressed the Section as follows:

REMARKS OF C. B. JORDAN.

Madam President, I have wondered why the ladies were so enthusiastic about their meetings. I can see one reason. You always have music; but I do want to say that is not the only thing that makes the ladies enthusiastic. Mrs. Jordan is very enthusiastic about it.

Early in May, I believe it was, one of my girls came to me and said, "We would like very much to be acquainted with the girls in the other universities who are taking pharmacy and we would like to be acquainted with the ladies who have graduated from the Purdue School of Pharmacy, and they have started an organization somewhere in the West, in one of the California colleges, to bring about a movement whereby the ladies in schools of pharmacy and the ladies who have graduated from schools of pharmacy can get together and become better acquainted." I said I thought that very fine and we looked over our list of alumni. We were surprised to find that fifteen women had graduated in pharmacy from Purdue. The girls began to write to them telling them what they wanted to do, that they wanted to become better acquainted with the women who had taken pharmacy. There naturally is, you see, a bond of sympathy there, and it is especially true at Purdue because all the other ladies in the college are acquainted with each other and take an active interest in each other's work, but it is pretty difficult for those who are taking pharmacy. I said, "Now that you have started that, I think it is a fine thing, and it seems to me that the Women's Section of the A. Ph. A. would be the proper organization to mother such a movement." And that explains my presence here this afternoon.

When I go back, my girls are going to ask me if anything has been done about it, and what they can do and what steps they can take to become better acquainted with those interested in pharmacy, and I am in hopes that this organization will take some steps to bring about a closer union for the young ladies who are taking and who have taken pharmacy. I do not know whether there should be a sorority or some other organization to bring about that end, which to me seems very desirable. I know it will take some time to study this out. You can't do it at once; but I

do hope that this organization will at least take some steps toward a solution of the problem, if you think it is desirable. Perhaps it might be well to appoint a committee to study the matter for a year. I know it would please the ladies who are taking work at Purdue if such a committee was appointed by this organization. I would like to know what the members think about this. I thank you very much for the opportunity to speak to you.

Mrs. Ruddiman thanked Dr. Jordan for the timely suggestions and inquired the pleasure of the meeting, relative to the matters as presented by him. After discussion by several of the members present, the motion of Mrs. Whelpley prevailed that the Chairman appoint a committee to take the matter under advisement and report at some future date.

The President named the committee to consist of the incoming officers and Executive Committee of the Section; this committee to work along the lines as suggested by Dr. Jordan in his address and report to be made at the 1918 meeting of the Section.

Miss Bertha Ott, who was not present, submitted a paper that was read by Miss Florence F. Koch, the paper being entitled, "Some Social Service Aspects of the Hospital." (See p. 820, September issue.)

Discussion of the paper was opened by Mrs. Dewoody, who said in part:

"He who serves best his fellow man,
Is serving God the holiest way he can."

Mrs. Timmons then stated that we have with us as our Secretary, Mrs. H. R. Kenaston, the President of the South Dakota Congress of Mothers and Parent-Teachers' Associations and will call upon her for remarks along the lines of this paper that are included in the purposes of that organization.

Mrs. Kenaston spoke in part as follows:

The work of the Parent-Teachers' Association as it may apply to the work called for in this paper would probably refer to the very earliest work that is given under the direction of the Parent-Teachers' Association. It is carrying on hygiene in the public schools. Their first duty is to talk with the young people, and with the expectant mother, so that the early seeds of life may be properly protected and reared to the highest possible degree of physical, mental and moral fitness to occupy this earth. Everything for the care, for the first three years of the young child, is under the direction of the Child Hygiene Circle, where the child is given practical attention until it becomes of "kindergarten" age. The mother is taken into the Parent-Teachers' Association rooms where the lectures are given for their mental development along the lines of the various requirements of the child. The little one, if the mother cares to have it so, is kept under the care of a trained nurse in an adjoining room, so the mother is free to attend the meetings and need not fear that the baby will disturb the meeting. Later the child is cared for by the Kindergarten Department of the Parent-Teachers' Association, and in the larger schools this plan is worked in connection with the provisions of the local school boards. Later in life the training of the child is continued and the first thought is always for the physical, moral and intellectual welfare of your boy and my boy, your girl and my girl. It is hoped through this channel that the better humanity may exist in the generations to come. We can't do much for the present. It is the future that the Parent-Teachers' Association has planned to look out for.

Mrs. H. M. Whelpley entertained the meeting by giving a reading; the beautiful story preceding the reading was given in the following words:

The little poem I wish to give you was written by a graduate of the Alton High School. She resides with her aunt in the Godfrey homestead at Godfrey, Illinois. Many of you may know that Captain Godfrey was the founder of the oldest existing female seminary in the United States. It was the second one to be founded, but the other one went out of existence. This one now exists, and is in, I think, more prosperous circumstances than ever before.

In this poem of thirty-six stanzas she commemorates the Indian Legend of Lover's Leap and also the Reverend Mr. Lovejoy who was, in 1826, a teacher and Presbyterian minister in St. Louis. He afterwards became editor of a religious paper called *The Observer*. Although not

of a band of Abolitionists, he was strongly in sympathy with them. In 1836, when a negro was taken from the jail and tied to a tree and burned to death, the judge instructed the jury that if the mob were impelled by a metaphysical, or mysterious frenzy they should be absolved from guilt. Lovejoy's pictures in the case led to the destruction of the office of *The Observer*. He then left St. Louis and went to Alton, but his press was destroyed before it reached Alton. He was reimbursed by some of the citizens, but that press was also destroyed. Another one was purchased, and that was destroyed and thrown into the Mississippi River. The citizens of Upper Alton then held a convention and decided in the name of liberty and freedom of the press that the office of *The Observer* should be allowed to continue in Alton. Another press was purchased, and that was not taken to the office, but was stored in a warehouse, where it was guarded by Lovejoy and some twelve or fifteen friends. At midnight the warehouse was attacked by a mob, the windows broken in, and fire set to the building. Lovejoy went out to defend the press, was shot and died almost instantly. A monument now commemorates this sacrifice to liberty.

Miss Mary Creighton prepared a paper, which was read by Mrs. May (Miss Creighton not being present), entitled, "Chemistry of the Household" (see p. 179, February issue).

Dr. H. V. Army addressed the meeting as follows:

Madam President and Ladies of the Women's Section.—Permit me first of all to thank you ladies for the great courtesy of asking me to come to speak to you on the Metric System. It is indeed a great privilege to be invited to address you.

Secondly, I wish to bring a personal word of greeting to the ladies of the Women's Section from my sister, Elizabeth Godbold, of New Orleans. I want to explain at this time, although it seems rather late, the tremendous appreciation she felt at the honor you conferred upon her at the San Francisco meeting by choosing her as the honorary President of the Section. I would not bring this up now, except that through some misunderstanding the letter of appreciation she sent to Miss Bagley last year was not read at Atlantic City and I want to tell you how grateful my dear sister Elizabeth is to the Women's Section.

THE METRIC SYSTEM IN THE HOUSEHOLD.

I am going to discuss with you the metric system and that from the broadest standpoint. There is a good deal of talk now in regard to dropping our archaic system of weights and measures and taking up the metric system, and what I want to talk about to-day, to you who are representatives of such a large number of women's clubs throughout the entire country, is whether I can not persuade you ladies to give talks and read papers before your respective women's clubs, on this subject of the metric system.

We have started the American Metric Association in order to begin a campaign of education. We want to educate the people of the United States to the fact that we are wasting millions of hours of time and millions of dollars by using the old system. I have a theory that practically all standards, until the metric system was adopted, were chosen primarily ages ago to fool the purchaser, making it as difficult as possible for the purchaser to understand what he was buying or how much he was getting. For instance, flour is never sold by the pound. You buy flour for \$2.10 for the bag of 24½ pounds. Who is going to calculate the price per pound? There is the difficulty. You have got to get down to a long division to calculate. The metric system will reduce this unnecessarily complex calculation, since the system is based entirely on units of ten. If you want to calculate you would simply divide by ten. If a certain thing calls for a meter, for example, say 36 or 40 cents a meter in length, then, if you want to buy a tenth of a meter it would be one-tenth of the amount, and that is one of the great advantages of the metric system.

At the meeting at which the American Metric Association was organized, we had the great pleasure of hearing Madame Montessori speak on the subject, and there was present at that meeting also the greatest anti-metric advocate in the country, a man connected with the machinery trades, and it was very interesting for this man, who has written that the metric system was so complex that nobody could understand it, to hear Madame Montessori call attention to the fact that the blocks with which she taught arithmetic to children three years old, were based on metric units.

I have here a little ruler representing the tenth of a meter, which is a forty-millionth part of the earth's circumference around the poles. In other words, if you are going to make a tour of the earth around the poles you have to walk 400 million times this space here. It is about the width of a hand. To encircle the world, it would require 400 million hands side by side.

The standard of the metric system is this meter stick, which I now show. This meter stick is nothing in the world but a yard stick, which is a little bit elongated. In other words, instead of being 36 inches, it is a trifle over 39 inches long. It was devised by surveyors and accurately measured to the standards we speak of, so that in case the original standard ever got lost, it can be replaced by the same measure by which the original was made.

This meter stick is divided into red and blue tenths, the latter being identical with the metallic rule I first showed. Even as we talk about the dime as the tenth of a dollar, so this is called the decimeter as representing the tenth of a meter. We find in turn this is divided into tenths, such a tenth being called the centimeter or one-hundredth of a meter. And finally it is divided into an exceedingly small division called the millimeter.

The meter is, of course, of comparatively little importance to us in pharmacy, although of course, it is of vast importance in so far as you ladies are concerned in purchasing cloth. As the meter is about a yard and a tenth, a meter of cloth should cost about ten percent more than the yard.

The Montessori blocks which I now show make a pyramid of ten and of these the bottom one is a tenth of a meter (or ten centimeters) in length, breadth and thickness. The next one is nine centimeters, the next one is eight centimeters, the next seven, the next six and the next five, and finally the very small one at the top represents one centimeter.

The largest block, the cube of a decimeter is called the cubic decimeter and is one of the standards of volume of the metric system. If we had a box of this size filled with water, we would have 33 ounces, or a trifle over a quart. This smallest block, the cube of a centimeter, is called the cubic centimeter, which is the second unit of volume. A cubic decimeter (or liter) represents 1000 cubic centimeters. The liter is the common unit of volume, being slightly over a quart. The cubic centimeter, on the other hand, is about one-fifth of a teaspoonful. If we have this liter measure filled with water, the weight of that liquid under standard conditions represents the standard of metric weight. The weight of a liter of water is called a kilogramme and represents 1000 grammes, or slightly over two pounds. The weight of water having the volume of this small cubic centimeter block is called the gramme and the ratio of these two units, gramme and kilogramme, is one to one thousand.

The foregoing statements show how exceedingly simple is the relation of metric units to each other. Another advantage is that in the metric system, there is a definite relation between length, volume and weight. Just think of our old system of weights and measures! What relation is there between a gallon and a pound, or what is the relation between a gallon of water and a mile? Could you talk about a mile of water? Of course, you could calculate, and if you took days to figure it out, you could finally, I suppose, arrive at the ratio to a certain extent.

Having pointed out the advantages of the metric system over our present system of weights and measures, let us next discuss how are we going to bring it into general use in this country? Among the most enthusiastic supporters of the metric system are the canners and the wholesale grocers. One of the most active men in organizing the Metric Association was Mr. Drake of the National Wholesale Grocers' Association, and I want to point out that he has started to educate the public in a very practical way. I presume you all know that under the Food and Drug Law, every package of goods that is a definite staple, like canned goods, has to bear upon the package the weight or volume of material actually sold. The idea of this law is to prevent a package of—let us say vanilla extract—that really holds two ounces from being considered by the purchaser as a four-ounce bottle. What Mr. Drake and a large number of canners are doing is to put on their packages not merely the weight in ounces, but also the metric equivalent, so as to gradually educate the public to the relation between grammes, which is the standard metric weight, and pounds and ounces.

I might point out, as I have already explained, that a thousand grammes is about two pounds, and therefore a pound is about 500 grammes, or, more strictly speaking, it is 453 grammes; but the idea is to educate the general public to the use of this system in a practical way. I am

going to emphasize what I have already told you, that from experience of my own in Germany I found that in the course of a couple of months of actual work with it you will find you think in terms of the metric system and when you once do that, then the rest is much simpler than our present weights and measures where we have to divide by 16 or 12, or $437\frac{1}{2}$. For, as I have just said, in the metric system we divide by tens all the way through.

This is no academic statement. At this time there are 437 million people of the 1,600 million people in the world, using the metric system. France, Germany, Italy, and, as a matter of fact, all the civilized countries except the United States and England, are using the metric system.

Where does the opposition to the adoption of the metric system in this country come in? It is chiefly due to the machinery manufacturers who argue that the screws and threads of their machines are cut in terms of the old-fashioned system and that to make the change from old-fashioned to metric units will mean considerable expense. This may be true, but when you live in a town where the street numbers are changed there is expense of changing the street numbers, and we must persuade our brothers of that type that they must make some sacrifice in order to get the metric system going.

I will merely mention in conclusion that I am not here as a solicitor. I merely want to say that the object of the American Metric Association, which was founded last year, is to disseminate knowledge concerning metrics and I will add that we are getting out a lot of very interesting information concerning the subject. If any of the ladies would like to become members, I want to say that information as to membership will be gladly furnished. We want also to get up a children's membership of say fifty cents a year, or even twenty-five cents, to get the youngsters interested. We want to give them these little foot rules and other souvenirs.

In closing, I want to say what I said in the beginning, I do hope you ladies will talk on the subject of the metric system before the women's clubs, and I want to say if anyone wants to write a paper on the metric system for some women's club, I would count it a great privilege to be of some assistance in helping you prepare such a paper.

A vote of thanks was tendered Dr. Arny for his interesting address.

The Committee on Resolutions, by the Chairman, Mrs. Dewoody, offered the report as follows:

RESOLUTIONS.

We, the Women's Section now in session with the A. Ph. A., have had a most enjoyable time, pleasure, profit and inspiration derived from our association and visit that will prove of lasting benefit and a source of happy recollection, and

We do fully realize the care and thought that has been expended upon us and the many things that have been done to complete the sum total of a perfectly good time, and therefore

Be it *Resolved*, That we extend to the local ladies our heartfelt thanks for their unstinted and constant attention to us. We thank them for the delightful functions given for our pleasure, the musical, the automobile ride, the luncheon, all fill a happy place, but above and beyond all this we thank them for the heart-to-heart attitude that has shown forth in the glad hand shake, the sympathetic smile and constant alertness to show us a kindness.

We do earnestly thank Mr. Taylor, Mr. Spencer and Mr. Coppock for the splendid music they have rendered and that has added so much to the pleasure of our meetings. We extend thanks to the hotel management for courtesy and attention.

While it is a great joy to meet and renew old friendships, it deepens our sorrow and regret that any should be missing. We mourn the absence of Mrs. Fletcher Howard detained through illness and bow in meek submission that death has taken from our ranks Mrs. Harry B. Mason and Mrs. W. L. Scoville.

Now may we in profound reverence thank the great and loving Father who makes possible these happy reunions—and may we remember,

"Destiny has made us brothers,

No one goes alone;

And what you put into the lives of others

Comes back to you, in your own."

MRS. W. L. DEWOODY,
MRS. ALFRED HUESTED,
MRS. CHAS. HOLZHAUER.

Upon motion of Mrs. C. A. Dye, duly seconded, the report was accepted. Report of the Committee on President's Address was given by Mrs. J. G. Godding as follows:

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

The Chairman who was appointed was unable to give this matter attention at the time and the Committee has asked me to report. It was only at a late hour that this came to me so that we have not been able to comment thereon as we would wish to do, but the Committee reports most favorably on this splendid address of the President. It is asked that each one study it carefully and ask your husband for the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, that you may watch for the time when the proceedings of these meetings shall be printed, and especially the number that will contain the President's Address. It is recommended that you give careful and earnest attention to the recommendations, and especially that one which speaks of women being so well fitted for pharmacy, and for each and every one of us to try to induce young women seeking work along professional lines to adopt pharmacy. Also, after we have given this careful attention and put in all the work we possibly can, do not forget her closing words, "of the time when this terrible struggle in the world shall be over that we women shall join together to put an end to War."

Mrs. H. M. Whelpley, Chairman of Committee on Nominations, reported the following:

President, Miss Zada M. Cooper, Iowa City, Iowa.

First Vice-President, Mrs. Wm. L. Dewoody, Pine Bluff, Arkansas.

Second Vice-President, Mrs. F. J. Wulling, Minneapolis, Minn.

Third Vice-President, Mrs. F. W. Meissner, La Porte, Indiana.

Secretary-Treasurer, Mrs. H. R. Kenaston, Bonesteel, S. Dakota.

Chairman Executive Committee, Mrs. C. A. Dye, Columbus, Ohio.

General Chairman Membership Committee, Miss Anna Bagley, Columbus, Ohio.

Respectfully submitted,

MRS. H. M. WHELPLEY, *Chairman*,

MRS. E. G. EBERLE,

MRS. O. F. CLAUS,

MRS. E. W. MAY,

MRS. F. H. CARTER.

Upon motion of Mrs. Godding, the report was accepted and the Secretary instructed to cast the ballot for the officers as nominated.

The Secretary announced that the ballot was cast as directed and the President declared the officers elected.

The officers were then installed by Mrs. Godding, who in well-chosen and happy words introduced the elect, vouching for their peculiar fitness for the respective positions to which they were chosen. Brief responses were made and the officers declared duly installed for the ensuing year.

The Secretary called the attention of the Section to the fact that a number of changes in the Constitution and By-Laws had been directed during the interval since same was adopted in 1913. During the year just closed, the Secretary had been directed to have Constitution and By-Laws printed in small booklet form. This could not be done because of necessary changes in wording, etc., to prepare a proper form. After discussion, on motion, duly seconded and carried, the President was asked to appoint a committee to prepare the Constitution and By-Laws and have same printed.

The incoming President and Secretary were named as the committee, namely, Miss Zada Cooper and Mrs. H. R. Kenaston.

In harmony with the spirit of the year, the closing of this meeting was completed by all joining in the song, "America."

(MRS. H. R.) JEAN M'KEE KENASTON, *Secretary*.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

BALTIMORE.

The January meeting of the Baltimore Branch of the American Pharmaceutical Association was held in Harris Hall, University of Maryland, on January 16th, President McKinney presiding.

The reading of the minutes of the previous meeting was omitted.

John C. Muth gave a most interesting talk on the subject of "The Laws Applying to the Sale of Alcohol," presenting the recent rulings of the Internal Revenue Department in a very clear and concise manner. In his talk Mr. Muth pointed out that alcohol produced prior to September 9, 1917, is called Beverage Alcohol and can be sold without any restrictions other than those in force before the Food Control Act became operative; that alcohol produced since September 9, 1917, is called Non-Beverage Alcohol. That in making application to deal in Non-Beverage Alcohol the applicant must file a bond covering three times the number of proof-gallons of alcohol he may have on hand at any one time, at the rate of one dollar a gallon. Liberty Bonds covering the amount may be deposited with the Collector of Internal Revenue. These bonds will be kept in Washington, the coupons being mailed the holder as the interest accrues. A holder of a permit may not sell pure alcohol except to persons holding permits. To others, he may only sell alcohol after it has been medicated according to one of the ten formulas suggested by the Department and in quantities of not exceeding one pint. The medication may not be done in advance, but must be done at the time the order is received. Physicians' prescriptions may be compounded with alcohol provided it is so medicated as to render it absolutely unfit for use as a beverage, and the druggists are held responsible as to the sufficiency of the medication. Non-Beverage Alcohol may be used without restriction in the manufacture of U. S. P. or N. F.

preparations. When alcohol is used in making other preparations, the manufacturer must file with the Collector certain data, giving the name of the preparation, the percentage of alcohol it contains and a sworn statement that this amount is no more than is necessary for the purposes of solution and preservation; that it is not a beverage or to be used as a beverage. Violations of these and other rulings found in *Treasury Decisions No. 2576*, are punishable by a fine of five thousand dollars or two years imprisonment, or both.

At the close of his address, Mr. Muth was given a rising vote of thanks and the Secretary was instructed to mail an abstract of the address to each member of the Branch.

A letter from the Washington Branch A. Ph. A. suggesting that members of that Branch would like to attend the February meeting of this Branch, was read, and the Secretary was instructed to invite the Washington Branch to this meeting.

Dr. John F. Hancock paid tribute to the memory of Prof. Joseph P. Remington and Mr. Charles Holzhauser, and suggested that a committee be appointed to draft suitable resolutions on the death of these men. A committee consisting of Drs. J. F. Hancock, E. F. Kelly and H. P. Hynson was appointed and the following resolutions were presented and adopted:

Be it Resolved, First, That we learned of the death of Professor Joseph Price Remington with deep regret.

Resolved, That we deeply sympathize with his bereaved family in their great loss.

Resolved, That the Branch do now suspend their business in order to pay appropriate respect to the memory of the lamented deceased.

Resolved, That the Secretary communicate these resolutions to the family of the deceased.

Be it Resolved, First, That we learned with deep regret of the death of Mr. Charles Holz-

hauer, the beloved President of the American Pharmaceutical Association.

Resolved, That we deeply sympathize with his bereaved family in their great loss.

Resolved, That the Branch do now suspend other business in order to pay appropriate respect to the memory of the lamented deceased.

Resolved, That the Secretary communicate these resolutions to the family of the deceased.

The following officers were elected:

President, C. C. Neal.

Vice-President and Chairman of the Executive Committee, Miss E. Grace Lotz.

Secretary-Treasurer, Frontis Lentz.

Member of Council, E. F. Kelly.

Chairman of the Committee on Membership, Charles H. Ware.

Chairman of Committee on Professional Relations, C. L. Meyer.

Chairman of the Committee on the Science and Practice of Pharmacy, H. A. B. Dunning.

Chairman of the Committee on Education and Legislation, Charles Morgan.

F. LENTZ,

Secretary-Treasurer.

CHICAGO.

The ninety-third monthly meeting of the Chicago Branch was held Friday evening, January 25, 1918, at Kuntz-Remmlers Restaurant, with forty members and visitors in attendance.

After dispensing with the reading of the minutes, a verbal report was presented by President Craig, followed by the Secretary-Treasurer's report, which showed that of the 150 members of the Branch, 48 had been in attendance at Branch meetings during the year and that the membership now numbered 165. N. Gray Bartlett and J. F. Fischnar have been lost from membership by death. The Secretary pointed out the need for an increased income in 1918 and recommended the appointment of a budget committee.

Upon motion unanimously adopted, the Executive Committee was instructed to prepare a budget for the expenses of the Branch for 1918 and ways and means to finance it.

The Membership Committee, C. C. Orr, Chairman, reported 29 new members in 1917 and 3 this evening. C. A. Seuring, Frank Ahlborn and Geo. V. Haering.

Mr. Wells reported nothing from the Legislative Committee.

The Committee on Practice, I. A. Becker, Chairman, presented a most interesting report on conservation of sugar and glycerin in pharmacy:

CONSERVATION OF SUGAR AND GLYCERIN IN PHARMACY.

The scarcity of sugar and its importance as a food forced the pharmacists of Germany and its allies early in this war to conserve it to the utmost and to find substitutes wherever possible for pharmaceutical purposes.

The war demands for glycerin also soon caused a scarcity of the raw materials from which it is obtained, thus compelling, early, its limited use, and a search for substitutes.

In England this need was reflected in the action of the General Council of Medical Education, in suspending the several formulas containing glycerin or sugar, or both, from the British Pharmacopoeia, and publishing "War Emergency Formulas" to replace them.

The position of the United States, a general supply depot to the other warring nations, during the greater part of the war, has made the situation serious for us rather early after our joining in the war.

Therefore, it behooves us carefully to consider ways and means for minimizing our consumption of these articles, and their elimination, whenever possible, in preparations they enter.

This subject has been so ably treated in papers just published, or soon appearing, that I need only direct your attention to the more salient features of them, urging you to fully acquaint yourselves with their details at your earliest opportunity.

In a paper appearing in the February 1918 issue of the *Northwestern Druggist*, F. A. Upsher Smith, of St. Paul, treats this subject very ably, confining himself to the U. S. P. preparations: This to be followed by a paper on the N. F. glycerin and sugar-containing preparations.

Mr. Smith recommends a joint A. Ph. A. and N. A. R. D. committee to devise substitute formulas to be placed at the disposal of the U. S. P. Revision Committee, and their adoption urged.

He treats the U. S. P. preparations in what may be called a statistical manner, with recommendations.

Under the caption, "Pharmacy and the War," Editor Eberle, of the *A. Ph. A. JOURNAL*, refers to this subject, in part, thus further emphasizing its importance.

I would call your attention, especially, to the paper of Curt P. Wimmer, read before the New York Branch, December 1917 meeting and published in the January 1918 issue, A. PH. A. JOURNAL, page 39.

Mr. Wimmer made some very fundamental experiments and investigations preparatory to further elaboration of the subject. I wish here to add my hearty endorsement of the suggestions contained in this paper, and for the sake of emphasis, to quote his closing paragraph, as follows:

"Let us not wait until we are asked to do it, but let us be prepared," "In our national emergency don't let us be followers, let us be leaders for the country's good."

(Signed) I. A. BECKER,

Chairman Committee on Practice.

Many samples of galenicals in which glycerin or sugar usually are found, but now made without glycerin or sugar, were shown. These included Bashams' Mixture, *Syrupus Factitious* B. P., *Elixir Simplex*, etc.

A group of preparations, accepted as Official British Sugar and Glycerine Substitutes was prepared by B. L. Eicher, and shown to the members. These preparations consisted of: *Syrupus Factitious*, *Elixir Simplex*, *Glycerinum Acidi Carbolici*, *Glycerinum Acidi Tannici*, *Glycerinum Amyli*, *Glycerinum Boracis*, *Syrupus Aurantii*, *Syrupus Limonis* and *Syrupus Tolutani*. Of the whole group, the *Syrupus Factitious* and the *Elixir Simplex* seemed the most desirable, many expressing the thought that it was even a better preparation than our present official elixir with syrup and 25 percent alcohol. The *Syrupus Tolutani* was also considered first class, the chloroform present undoubtedly adding to its therapeutic value.

The sentiment was general that if the syrups of lemon and orange had been made from the fresh oils rather than the tinctures, the products would have been better. Samples of a syrup substitute using an Irish moss jelly were also shown and proved quite commendable, especially as a vehicle for wild cherry cough preparations.

Wm. Gray showed samples of several elixirs and syrups made without sugar or glycerine; particularly an elixir of terpin hydrate in which the chemical was kept in solution with an equivalent quantity of glacial acetic acid and neither glycerin nor alcohol were used in this elixir.

R. A. Whidden, speaking to the report, stated

that tragacanth gum is now very scarce and of poor quality, and its general use by druggists would soon consume the entire supply. He and Adolph Umenhofer strongly objected to the use of the term "substitute" in connection with pharmaceutical preparations. They held that substitution in connection with pharmacy was a term of reproach and ridicule in the public eye and that new and distinctive names should be adopted to designate preparations to be used in place of glycerin and syrup. I. M. Light advanced the argument that sugar and glycerin were not so scarce that their use in essential medicines should be discontinued while they were being extensively used in the manufacture of candy and soda syrups, toilet articles, etc.

President Craig stated that there was a real shortage of both sugar and glycerin, which shortage would become more acutely felt as war continued, but agreed that the use of these articles in the non-essentials should be restricted before the restriction of their use in medicines. He urged a trial of mucilages and a trace of alkali in toilet preparations in place of glycerin and of corn syrup with saccharin if necessary in soda syrups. He also said that in France solutions of certain salts were used in place of glycerin.

Professor W. B. Day: "While conditions to-day do not perhaps warrant the immediate introduction of sugar and glycerin substitutes for use in medicines, yet rapid changes may occur in the food situation and druggists may be suddenly shut off from adequate supplies of sugar and glycerin. We should be prepared to meet such changed conditions when they arise. Therefore I move that the U. S. P. and N. F. Revision Committees be requested to consider the question of the conservation of sugar and glycerin in official preparations against the possibility of a government request that pharmacists curtail the use of these substances in medicine."

This motion was seconded, and after further discussion was submitted to a vote and failed to carry. The report of the committee was adopted, however.

Thos. H. Potts was not present to report for the Publicity Committee, but President Craig pointed out the fine service that C. R. D. A. News had given us in announcing the meetings of the Branch, and Wm. Gray moved that the officers of the C. R. D. A. be given a rising vote of thanks. This vote was unanimous. The report of the Nominating Committee was presented as follows:

*Officers.**President*,^{*} Hugh Craig.*1st Vice-President*, A. H. Clark.*2nd Vice-President*, Mrs. A. S. Druehl.*3rd Vice-President*, E. Von Hermann.*Council Member*, Clyde M. Snow.*Secretary-Treasurer*, E. N. Gathercoal.*Committee Chairmen.**Membership*, W. B. Day.*Legislation*, S. C. Henry.*Practice*, I. A. Becker.*Medical Relations*, Dr. Bernard Fantus.*Publicity*, Thos. H. Potts.

S. C. Henry moved the substitution of the name of James H. Wells in place of S. C. Henry as chairman of the Legislative Committee and the Nominating Committee accepted the substitution. Upon motion of B. L. Eicher and seconded by I. M. Light, the report as amended was adopted and the Secretary was instructed to ballot for the nominees. The Secretary cast the ballot and the Chairman declared the nominees elected.

The Hon. Frank Freericks, of Cincinnati, was then introduced in the President's most eulogistic, yet sincere, manner. Mr. Freericks spoke on the Income and Excess Profits Tax. He distributed copies of Income Tax Return forms and used several charts. The address was given in Mr. Freericks' usual eloquent and yet very clear style and at its conclusion he answered many questions. The address was very warmly applauded and received with numerous expressions of thanks.

E. N. GATHERCOAL,
Secretary.

The ninety-fourth monthly meeting of the Chicago Branch was held Friday evening, February 22, 1918, at Kintz-Remmlers Restaurant with about 40 members and visitors in attendance.

P. S. Mandabach and J. S. Bellack were received as new members.

Following dinner, the meeting was called to order at 8.30, President Craig presiding.

The reading of the minutes was dispensed with and no routine business was brought before the meeting.

President Craig then introduced Dr. Edward Kremers, who read the paper of the evening, "The Revision of the United States Pharmacopoeia: a Retrospect and a Prospect." The speaker reviewed briefly the history of our national standard, pointing out that ours is one of the first of the national pharmacopoeial

standards. He dwelt, somewhat in detail, on the rejection by the A. M. A., in 1876, of Dr. Squibb's suggestion that this national medical body take over the responsibility of revision which had previously been assumed in large part by the editors of the U. S. Dispensatory. Indeed, for a long time, this was the national standard in fact, while the U. S. P. enjoyed the distinction in name only. He also showed how the work of the A. Ph. A. Committee proposed by Dr. Hoffmann and headed by Dr. Rice laid the foundation to the revision of 1880, which resulted in our modern standard.

The principal problems that confront us in the revision of the U. S. Pharmacopoeia are:

1. The question of financing the expert labor required; and, closely associated with this,
2. The frequency of revision; and lastly,
3. The question of representation of the interested professions.

With the call of the next decennial convention, the U. S. Pharmacopoeial revision will have completed its first century of history. The present tendency toward centralization of power in Washington is another reason why pharmacists should not leave the initiative of pharmacopoeial reform to others, least of all to a possible new department in our national government, in the organization of which they may not even have a voice.

Dr. Kremers stated that Government revision, for which abundant research was available, would be more authoritative and could, by a continuous process of revision, quickly eliminate errors and keep the work fully up to date. He suggested that the whole pharmacopoeia might well be printed on cards and that general revision at fixed periods be discontinued.

The discussion, which was very full, divided itself into two general trends—that which endorsed Dr. Kremers' views and that which found more or less objection to them.

Professor R. P. Fischel expressed the opinion that at present in any of the Government departments that could take charge of this revision, pharmacy would have no voice whatever, and it would not be advisable to turn over the revision until pharmacy had some official recognition by the Government.

PROFESSOR J. A. KOCH: We have a good U. S. P.; no better pharmacopoeia in the world, though many are government-revised. Can the Government better it? Will it be more prompt in giving the revisions? Our

past experience does not so indicate. If pharmacy relinquishes now her right to a prominent position in pharmacopoeial revision, she will never regain such position.

P. A. MANDABACH: The price of the Pharmacopoeia should be reduced. Sixty-seven percent of the drug stores are without a U. S. P., last revision, to-day.

PROFESSOR W. B. DAY: Our Pharmacopoeia is the peer of any of the pharmacopoeias of the world. If pharmacy releases its control of revision, will she have any power in an advisory capacity? Advisory boards are usually helpless; their advice is often not acceptable to the "powers that be." Pharmacy's loss of the U. S. P. will certainly be taken advantage of by medicine and chemistry. But Government control is probably coming and Dr. Kremers has done a great service in presenting this matter to the Chicago Branch. Its consideration is timely. Let us build up pharmacy to a point where its recognition will be inevitable.

MR. S. C. HENRY: It is of the utmost importance that pharmacy should have oversight of pharmaceutical standards and if we need Government aid in the revision, we should initiate the movement, formulate our plans and present them in such an intelligent way that we could secure such assistance and research and still retain the hold of pharmacy in guiding and dictating the revision.

DR. H. M. GORDIN, in a very striking talk, upheld Dr. Kremers' ideas. He disagreed with the point made by Mr. Mandabach, saying that the reason 67 percent of the pharmacists had no pharmacopoeias was not because they couldn't spare the three dollars to buy one, but because they were not sufficiently interested in the book to do so. The retail pharmacist, with few exceptions, knows nothing of the pharmacopoeia and cares nothing for it. It is a public book of standards and could well be prepared by the Government.

PROFESSOR A. H. CLARK: Much is said about the control of the U. S. P. by the pharmacist and what the pharmacist wants in the U. S. P. After all, it is a question of public policy and the U. S. P. should be made in the interests of millions of people all over the country, and not in the interest of some few thousands of pharmacists. If the Government can best serve the interests of all, then it is surely the one to revise the U. S. P. The Government would probably delegate the work to a few men and it has been suggested that under these conditions, self-interested manufac-

turers, politicians, grafters, etc., would have a hand in it. I feel that there is no more danger of this than under the present system, where a goodly number of the active members of the Revision Committee are manufacturers, and others, who may be interested in various ways. What the U. S. P. needs above all else is continuous, systematic, thorough and efficient research work in order to bring the tests and standards to the highest degree of perfection. Much evidence is found in the various revisions of the book of the lack of this. I feel that the Government could prosecute such work much better than a committee such as we now have. The necessary funds do not seem to be forthcoming from any other source.

By special request, Dr. Fischelis reported on the work of the National Pharmaceutical Service Association.

The University of Illinois School of Pharmacy had on display a complete set of the U. S. P. from 1820 to date, also a set of *Digest of Criticisms* of the U. S. P. and N. F. and of the *Circulars* of the Revision Committee. The display was of much interest to those in attendance.

E. N. GATHERCOAL,
Secretary.

CINCINNATI.

Through error in misreading, in making a typewritten copy, in the office of the JOURNAL, the lecture by Dr. Zeumer, of Parke, Davis & Co., on "The Manufacture, Preparation and Uses of Antitoxins and Serums," before the Cincinnati Branch, A. Ph. A., January 8, 1918, was credited to Prof. Fennel. The report is printed on p. 184 of the February issue. Dr. E. P. Zeumer's name should have been given in this article wherever that of Prof. C. T. P. Fennel occurs.

DENVER.

PROF. JOSEPH P. REMINGTON: AN APPRECIATION.

BY SAMUEL T. HENSEL.

Before presenting the set of resolutions which I have had the honor of being appointed to prepare for the consideration of the Denver Branch of the American Pharmaceutical Association, respecting the death of Prof. Joseph P. Remington, I would ask your kind indulgence while I offer a brief appreciation of this distinguished man.

I do not undertake this as one authorized to speak by virtue of professional association, or through intimate knowledge of his life's work, extended over so many years, but rather as an alumnus of the Philadelphia College of Phar-

macy, the great institution over which he presided with such marked ability and success.

My recollection of Professor Remington carries me back to the days of my youth, when I sat at the feet, respectively, of Prof. John M. Maisch, the profound scholar and distinguished American botanist; of Prof. Edward Parrish, one of the most accomplished pharmacists of his day; and of Prof. Robert Bridges, the eminent physicist and chemist, the American editor of "Fowne's Chemistry," an English work well known to the pharmacists of that period.

The last year of my attendance at college, Professor Remington became an assistant to Professor Parrish, and stood, so to speak, upon the very threshold of his career.

When he first entered the classroom, the impression I received was that of a strikingly handsome, dignified and highly intellectual young man.

He immediately gained the admiration, confidence and love of the student body by reason of his kindly helpfulness and enthusiasm, qualities which he retained through life.

His interest in the future of graduates, who went forth into the world as alumni and representatives of their Alma Mater, was undiminished to the very last. This spirit breathed in every word he ever wrote to the members of the Alumni Association.

When in August 1912, the American Pharmaceutical Association held its annual meeting for the second time in the city of Denver, arrangements were immediately made for the mid-week meeting of the Alumni Association of the Philadelphia College of Pharmacy.

The meeting, held in the Magnolia Room of the Albany Hotel, was presided over by Professor Remington, as were nearly all pharmaceutical gatherings when "Remington," as the boys fondly called him, was available.

And there was a reason for this, for Professor Remington could always be depended upon to do the right thing in the right way and at the very nick of time.

The gathering on this occasion was a notable one, composed of a large number of the leading lights of the pharmaceutical world.

One by one these were called upon, and each speaker seemed to furnish added inspiration to his successor, the result being a series of the most beautiful tributes of respect.

Professor Sayre, of the University of Kansas, had just ceased speaking, and I had been carried back in memory to the days of my boyhood, when I was aroused from my reverie and almost stupefied, as I heard my name called; for Professor Remington had stated, a short time before, that owing to the large attendance it would be necessary to depart from the usual custom of calling upon every alumnus, therefore, he would confine himself to a few.

I rose in my place with no idea of what I was going to say, but as I stood up an incident of the classroom flashed across my mind, and I was thus saved from complete discomfiture and furnished with the introduction to my remarks.

I said that my embarrassment in being called upon was akin to that of Professor Parrish at the delivery of his lecture on "The Application of Heat to Pharmaceutical Processes."

He was describing the "Bunsen" burner, explaining its theory, construction and application. He showed wherein it differed from the ordinary gas jet. The "Bunsen" flame was non-luminous and intensely hot, while the ordinary gas jet was luminous. The luminosity of the gas jet was due to very minute particles of unconsumed carbon which, as they approached the heated zone of the flame, became incandescent, thereby causing light.

In the case of the Bunsen burner, its construction is so arranged as to provide for the admission of a large body of air, four-fifths of which is known to be oxygen; this in turn combines with the carbon of the gas immediately to form carbon monoxide, which is a non-luminous flame, representing all of the heat calories of the gas employed.

He went on to tell how it could be demonstrated that the luminosity of the gas jet was due to unconsumed carbon. If, said he, we rotate a plate over a flame, there will be immediately observed a deposit of carbon.

The similar rotation of a porcelain plate over the Bunsen burner results in no discoloration.

To demonstrate that the black deposit is carbon, he said that if we now rotate the blackened plate over the Bunsen burner, we shall find that the blackened surface will disappear. This is due, he explained, to the fact that the carbon on the plate combines with the oxygen of the air and burns from the porcelain surface.

DETROIT.

For some reason or other, whether from atmospheric influences, decomposition products, or the character of the gas coming from the burner, the experiment was not a success.

Professor Parrish was a most excellent talker and very resourceful. He kept rotating the plate over the non-luminous flame, turning it over to look at it from time to time, and discovering that it was a failure, he skillfully shifted his remarks, along with the plate, and began talking upon some related subject.

The boys who had followed his lucid description of the rationale of what was to have been a striking experiment, stood the strain for a few minutes longer and then broke into a simultaneous roar of laughter. Professor Parrish, after a moment of evident embarrassment, in his most charming manner, smilingly said: "Well, for some reason the demonstration is not a success to-day, but it can be done, under proper conditions."

After I had finished the recital of this incident of the classroom, Professor Remington rose and in his irresistibly humorous vein said: "Well, we've got it on the boys now. Whenever we give that lecture we provide ourselves with two plates, one with the carbon deposit, and the other blank; by skilful manipulation, the experiment never fails."

When we come to consider the activities of Joseph P. Remington as Ex-President of the American Pharmaceutical Association, Ex-Chairman of the Council of that body, Chairman of the Committee of Revision of the United States Pharmacopoeia, Editor of the United States Dispensatory, Author of the famous "Theory and Practice of Pharmacy," Dean of the Philadelphia College of Pharmacy, we get an insight into the working capacity of a great man.

His labors as Chairman, Editor, Author and Dean of a great educational institution alone represents a prodigious amount of work, which could have been accomplished only by the exercise of the most careful, orderly and systematized methods.

The magnitude of this work did not permit him to wait for the inspiration of the divine afflatus. "Duty" stood ever at his elbow, urging him on to the achievement of a life-work that must ever remain as an example of the highest order of well-directed effort, which will be held in grateful remembrance not only by his contemporaries, but likewise by the pharmacists of the future.

A joint meeting of the Detroit Branch of the American Pharmaceutical Association and the Prescott Club of the University of Michigan, held at Ann Arbor, February 14, proved to be one of the most interesting of the year. A special car left Detroit at three o'clock with about thirty-five enthusiastic Detroit members aboard. The delegation was met at the University by Dr. Kraemer, professor of pharmacognosy. Assisted by Prof. Glover, Secretary of the College of Pharmacy, Dr. Kraemer conducted the visitors through the pharmacy and chemistry laboratories. One of the many interesting displays shown was the collection of materials from which the official selections for the last three United States Pharmacopoeias were made.

An excellent dinner was enjoyed at the Michigan Union, with Dr. Kraemer as host.

The delegation was honored by the presence of Dr. Hutchins, president of the University of Michigan, who, after a short address of welcome to the visitors, by Dr. Kraemer, spoke of his appreciation of the efforts of the American Pharmaceutical Association to obtain proper recognition for the profession. Both speakers paid high tribute to the memory of Dr. Prescott, in whose honor the Prescott Club was organized. C. F. Mann, treasurer of the Detroit Branch of the American Pharmaceutical Association, expressed the gratification felt by the Detroit representatives for the hearty welcome received, and having known Dr. Prescott personally, spoke of the wonderful character of the latter. He also voiced the sorrow of the Branch on account of the absence of Dr. Stevens and the sympathy of the organization for him in his recent bereavement.

The joint meeting of the two organizations was called to order by the president of the Prescott Club. "Paraffin Films and Oil Dressings for Treatment of Wounds and Burns," being a topic of keen interest at the present time, the talk and demonstrations given by Wm. Bonisteel were followed very closely. The Carrel-Dakin Solution is also attracting quite a lot of attention and Mr. Wagner, in presenting "Technique Employed in Making Carrel-Dakin Solution," aroused considerable discussion.

H. B. McWilliams showed very clearly the two sides of present pharmacy, the ethical and the commercial views, pointing out, that as a profession, the ethical side must predom-

inate. As defendants of each side were present, heated discussion followed.

The speakers were members of the Prescott Club, but the Detroit representatives were very active in the discussions.

After the meeting adjourned, refreshments were served, and a short social period enjoyed. Then the special car traveled swiftly to Detroit, being delayed only once, while a freight train of numberless cars held the crossing. But the hope that they were all coal cars prevented even murmurs against the delay, and soon the February meeting was a decidedly successful event of the past.

The March meeting also promises to be very interesting. Mr. Wendell, Display Manager of the J. L. Hudson Co., will discuss window displays and the methods of obtaining the best results. All Detroit pharmacists are acquainted with the successful exhibits of this company. Owing to the inclement weather at the time of the January meeting, Dr. Lescohier, who was scheduled for that meeting, will give a talk at the March meeting on "Biological Preparations, Serums, Antitoxins, Vaccines, etc." Since the biological preparations of Parke, Davis & Co. are so well known, Dr. Lescohier will be given a hearty welcome.

M. STRAWN,
Secretary.

NASHVILLE.

A joint meeting of the Nashville Branch of the American Pharmaceutical Association and the Nashville Drug Club was held Thursday, February 21st, D. J. Kuhn presiding.

Postmaster E. S. Shannon, of Nashville, was introduced and made a strong appeal to the members present to assist in the Government's Thrift Stamp campaign, asking them to become agents of the first class and thus help in this worthy cause. There was a general expression of willingness to assist in this work.

President H. L. Sperry, of the Morris Bank, was next introduced and explained the methods of this bank. He stated that 85 percent of the money loaned by this bank was to those who needed money because of sickness and that therefore a large portion loaned by this institution went to the druggists and doctors. He explained that druggists could frequently collect debts by assisting their debtors to negotiate loans which could be paid back in small installments. Mr. Sperry also stated

that druggists had an opportunity to act as agents for the bank and also as collectors of the payments that were to be made on the installment plan.

On motion of W. R. White, a War Service Committee was appointed, consisting of Messrs. S. C. Davis, D. S. Sanders and H. A. Buchi, this committee to represent the two associations in matters that required the co-operation of the druggists with the public and Government.

D. S. Sanders spoke on the subject of "How to Obtain a License to Sell Explosives." He dwelt upon the responsibility that rests upon druggists in selling explosives and poisons.

W. R. WHITE, *Secretary.*

NEW YORK.

The February 1918 meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Mayer in the lecture hall of the New York College of Pharmacy on Monday, the 11th, at 8.30 P.M.

Seventy-five members were present.

The minutes of the January meeting were read and approved.

The Treasurer submitted his report which showed a balance of \$209.25 on hand.

Member of the Council.—Professor Hostmann sent word that it was impossible for him to be present and therefore no report was received.

Membership Committee.—The names of five new members were presented for membership in the parent association: Albert B. Muller, 2482 Valentine Ave., N. Y. City.; H. B. Shattuck, 31 East 17th St., N. Y. City; Frank Parker, 51 West 37th St., N. Y. City; Eugene Katz, 895 West End Ave., N. Y. City; Marmelo Patola, 353 First St., Jersey City, N. J.

The Secretary was directed to follow the usual course with regard to these applications.

Legislation and Education.—Mr. Lehman brought in a very comprehensive report dwelling especially on the new explosive requirements. He also announced that the following members would serve with him on the Committee of Legislation and Education: Fred Nitardy, Hugo Kantrowitz, Jeanmot Hostmann, Jacob H. Rehfuss.

Mr. Robert S. Lehman's report, after some discussion, was accepted.

Fraternal Relations.—In the absence of Dr. J. Leon Lascoff no report was received.

Progress of Pharmacy.—Dr. Diekmann brought in an elaborate report discussing, among others, the following subjects: Bacteria in Fungi, Toxic Value of Arsenates, Iodide of Starch in Treatment of Affected Wounds, Cattle Foods and Substitutes, Calcium Cyanamide as Fertilizer, War Emergency Formulas, Simulation of Disease, etc., and Its Detection.

Dr. Diekmann's report was received with considerable applause, which, after discussion, was ordered accepted.

It was now moved, seconded and carried that the Local Branch request the President of the Parent Organization to take such steps as are necessary to bring about the required research work, to determine substitute formulas of pharmaceuticals, etc., which would cause the saving in products needed in the present war or which at present are rare.

The Special Committee on By-Laws reported that no formal meeting of this committee was held and therefore no report could be brought in.

Dr. Hugo Kantrowitz presented an appreciation of Charles Caspari, Jr., by the A. Ph. A. It was moved, seconded and carried that this be made a part of our minutes. (See under Council Business.)

Dr. Robert P. Fischelis now read a paper on the Edmonds Bill and the work of the National Pharmaceutical Service Association. He was followed by Col. E. E. Persons, Commander of the American Ambulance Service at Allentown, Pa., who gave an informal "talk" of the organization of that service. Major H. Sheridan Becket, M.R.C., next gave a talk on the methods of the Army Medical Supply Depot, and the efficient work carried on by them.

These papers were followed by a very interesting discussion. A rising vote of thanks was then extended to the speakers and to Caswell A. Mayo, who had assisted in arranging the program.

Upon motion it was then voted to adjourn.

(Signed) HUGO H. SCHAEFER,

Secretary.

NORTHWESTERN

The Northwestern Branch of the American Pharmaceutical Association met in conjunction with the Scientific and Practical Section of the Minnesota State Pharmaceutical Association at 3:30 P. M., February 7th, in the West Hotel, Minneapolis, Minnesota. Dr. F. J. Wulling, chairman of the scientific section of

the state association, convened the meeting. The following program of the scientific section was carried out:

1. "A Practical Problem," by Gustav J. Demars.

2. "Hints to Success," by Max Menzel.

3. A brief address by President M. L. Burton, of the University of Minnesota.

4. "War Emergency Formulas"—Suggestion for changes in the preparations of the U. S. P. and N. F. for the conservation of glycerin, sugar and alcohol; a symposium to be opened by Mr. F. A. U. Smith.

5. "Behind the Prescription Counter," by Rasmus Bartleson.

6. "Venereal Diseases"—a symposium to be opened by Dr. Chas. E. Smith, Jr.

7. "The Biologic Assay of Digitalis Produced in the Medicinal Plant Garden, College of Pharmacy, University of Minnesota, 1917," by E. L. Newcomb and Chas. H. Rogers; read by Dr. Newcomb.

8. "A Method for Cleaning Digitalis, with a Study of the Inorganic Constituents," by Chas. H. Rogers and E. L. Newcomb; read by Dr. Rogers.

9. Report of the Chairman of the Committee on Adulterations, by Gustav Bachman.

10. "The Advent of Pharmacists to St. Paul," by Herman Rietzke.

11. "The College of Pharmacy of the University of Minnesota (continued from 1917)," by F. J. Wulling.

The committee appointed to formulate suitable resolutions on the demise of the late President Charles Holzhauer and Professor Charles Caspari, Jr., submitted the following:

REPORT OF THE COMMITTEE APPOINTED TO
FORMULATE SUITABLE RESOLUTIONS ON
THE DEMISE OF THE LATE PRESIDENT
CHARLES HOLZHAUER AND PRO-
FESSOR CHARLES CASPARI, JR.

WHEREAS, By the will of Divine Providence our devoted friends and fellow co-workers, Charles Holzhauer and Charles Caspari, Jr., have been taken from our midst at a time when their counsel and advice were so valuable; and

WHEREAS, We, the members of the Northwestern Branch of the American Pharmaceutical Association, deeply feel the sad loss of such staunch friends, capable, willing and talented workers for the betterment and advancement of pharmacy, devoid of selfish interests, always sacrificing self for the good and betterment of their fellow-men, and per-

sistent thinkers and workers to place pharmacy on the highest plane possible; and

WHEREAS, We further wish to acquaint their friends and families of the high regard in which they were held and the great loss which we feel the pharmaceutical profession has sustained through their sudden demise, now, therefore be it

Resolved, That we give expression of our deep heartfelt sorrow at their untimely death, our high appreciation of the many sterling qualities that bound them to us on all occasions and at all times, and our sincere sympathy to their families and to all those who mourn their loss; and be it further

Resolved, That a copy of these resolutions be spread upon the records of the Northwestern Branch of the American Pharmaceutical Association and that a copy of the same be forwarded to their families.

F. J. WULLING,
Chairman.

A motion was made, seconded, and unanimously carried to include Professor Remington's name in the resolution.

The following officers were elected for the year 1918:

President, C. H. Bollinger, St. Paul; *Vice-President*, Gustav Bachman, Minneapolis; *Secretary and Treasurer*, C. H. Rogers, Minneapolis; *Members of the Executive Committee*, Stewart Gamble, Minneapolis; Wm. A. Frost, St. Paul; Wm. A. Abbott, Duluth; E. E. Tupper, Minneapolis.

CHAS. H. ROGERS,
Secretary.

PHILADELPHIA.

The January meeting of the Philadelphia Branch of the American Pharmaceutical Association was annulled out of respect to the memory of the late Professor Joseph Price Remington.

On Saturday evening, January 12th, a special meeting of the Local Branch was called by the president, Ambrose Hunsberger, at his home, 1600 Spruce Street. The meeting was hurriedly convened to honor Secretary Henry, of the N. A. R. D. On account of the uncertainty of Mr. Henry's stay in Philadelphia, it was impossible to notify the entire membership, in consequence of which the gathering was not large. After discussing at some length all matters pharmaceutical, the company partook of refreshments generously furnished by the host of the evening. President Hunsberger, acting as toastmaster, deftly ex-

plained the purport of the meeting when he graciously presented to Mr. Henry, on behalf of the Local Branch, an engraved silver loving cup. It bore upon it an inscription of the appreciation of the Branch of Secretary Henry's good services to the pharmaceutical profession. Mr. Henry's response was most sincere and aptly worded. President-elect LaWall, of the American Pharmaceutical Association also expressed the sentiments of those present when he said that Philadelphia's loss of Secretary Henry's services was compensated for in the knowledge that he would still be serving pharmacy and in a larger way. Other speakers were E. G. Eberle, O. W. Osterlund, E. G. Allen, W. E. Supplee, R. P. Fischelis, R. H. Lackey, Otto Kraus and Ivor Griffith.

The February meeting of the Philadelphia Branch of the American Pharmaceutical Association was held at the Philadelphia College of Pharmacy on Tuesday evening, February 5th, with the president, Ambrose Hunsberger, in the chair. Prof. Charles H. LaWall opened the scientific program with an excellent paper on the subject of "Colloids." The Professor's paper comprehensively treated the difficult subject and rendered a pleasing and understandable survey of this new field of physical science. Counter experiments added to the value and interesting character of the paper. It is seldom the privilege of listeners to have such an apparently scientific and abstruse matter placed before them in such a lucid and interesting manner. The devious ways in which colloidal bodies play their part in pharmacy were enumerated and explained. Professors Stroup and Gershenfeld participated in a discussion of this paper.

President Hunsberger then requested W. L. Cliffe to assume the chair temporarily, and read his paper on "Practical Drug Conservation," in which he revealed a number of practical suggestions for the sensible saving of drug supplies which are daily becoming more scarce. Mr. Hunsberger did not favor a radical change of formulas in order to conserve such products as alcohol, glycerin and sugar. A more feasible way, according to the speaker, was to have each pharmacist take the matter up with the neighborhood physicians and ask their cooperation in this matter of conservation. This was the opportune time for the pharmacist to display his ability to render assistance to the prescribing physician by suggesting new formulas, etc. The speaker re-

cited instances where he had done this with gratifying results to himself as well as the physician. He also pointed out that there were several liquid pharmaceuticals which contained an excess of either one of the previously named products and suggested that considerable conservation might be accomplished by cutting down the quantities where legally and ethically permissible. Mr. Hunsberger pointed out as a concrete example that if it were possible to have physicians all through the country to stop prescribing "elixir of terpin hydrate" and to use capsules in its place several tons of glycerin and alcohol might be conserved each day. Ways of saving containers by eliminating odd sizes, etc., were also mentioned.

Mr. Hunsberger's paper was fully discussed by Professors Cook, Fischelis, LaWall and Gershenfeld, Messrs. E. G. Eberle, W. L. Cliffe, W. McNeary and Ivor Griffith.

Professor Cook placed a motion before the branch authorizing the President to nominate a committee of three to study this matter of drug conservation and present a comprehensive report at the next meeting. The motion was duly seconded and carried. The Branch then went on record as giving its full endorsement to the Edmonds' Bill soon to come before Congress.

The meeting was attended by more than fifty persons.

IVOR GRIFFITH,
Secretary.

COUNCIL BUSINESS

A. PH. A. COUNCIL, LETTER NO. 11.

PHILADELPHIA, February 6, 1918.

To the Members of the Council:

Motion No. 17 (Approval of Membership of Committee on Research) and Motion No. 18 (Election of Members; applications Nos. 63 to 68 inclusive) have each received a majority of affirmative votes.

F. Lentz, Secretary-Treasurer of the Baltimore Branch writes that: "I beg to advise that at the last meeting of the Baltimore Branch of the American Pharmaceutical Association, held January sixteenth, Dr. E. Frank Kelly, of 302 Edgevale Road, Baltimore, was elected a member of the Council of the American Pharmaceutical Association to represent this Branch for a term of three years."

The following Tentative Program for the Sixty-sixth Annual Meeting of the Association to be held at Chicago during the week of August 12th to 17th inclusive, is submitted by the Committee on Program, the General Secretary, Secretary of the Council and Local Secretary. Comments and suggestions are invited.

TENTATIVE PROGRAM.

Monday.

- 9.30 A.M. National Association Boards of Pharmacy.
- 2.00 P.M. National Association Boards of Pharmacy.
- American Conference of Pharmaceutical Faculties.

- 8.00 P.M. National Association Boards of Pharmacy.

American Conference of Pharmaceutical Faculties.

Tuesday.

- 9.30 A.M. National Association Boards of Pharmacy.
- American Conference of Pharmaceutical Faculties.
- 2.00 P.M. Joint Session of National Association Boards of Pharmacy.
- American Conference of Pharmaceutical Faculties and Section on Education and Legislation.
- 7.00 P.M. Council Meeting.
- 8.00 P.M. First General Session of Association.

Wednesday.

- 9.30 A.M. Scientific Section, first session.
- Section on Education and Legislation, second session.
- Women's Section, first session.
- 12.30 P.M. Alumni Luncheons.
- 2.00 P.M. Commercial Section, first session.
- Section on Practical Pharmacy and Dispensing, first session.
- 7.00 P.M. Council Meeting.
- 8.30 P.M. President's Reception.

Thursday.

- 9.30 A.M. Section on Education and Legislation, third session.
- Commercial Section, second session.
- Historical Section, first session.

- 2.00 P.M. Section on Practical Pharmacy and Dispensing, second session.
 Scientific Section, second session.
 Women's Section, second session.
 7.00 P.M. Council Meeting.
 8.00 P.M. Second General Session of Association.

Friday.

- 9.30 A.M. Scientific Section, third session.
 Section on Practical Pharmacy and Dispensing, third session.
 2.00 P.M. House of Delegates.
 4.00 P.M. Entertainment.

Saturday.

- 9.00 A.M. Council Meeting.
 10.00 A.M. Final General Session of Association.

Motion No. 19 (Election of Members). You are requested to vote on the following applications for membership:

- No. 69. Benjamin Greenblatt, 209 So. Madison St., Iowa City, Iowa, rec. by W. J. Teeters and R. A. Kuever.
 No. 70. Henry Emil Zutz, 673 N. Dale St., St. Paul, Minn., rec. by Wm. B. Day and F. J. Wulling.
 No. 71. A. C. Herting, 3504 Federal St., Camden, N. J., rec. by E. G. Eberle and J. W. England.
 No. 72. Robert Litson Gaddy, Woodruff, S. C., rec. by H. M. Whelpley and J. W. England.
 No. 73. John Northrup Cole, 50 Golden Gate Ave., San Francisco, Cal., rec. by J. L. Lengfeld and Wm. B. Day.
 No. 74. Dr. S. H. Jee, The Hunan-Yale Hospital, Changsha, Hunan, China, rec. by J. W. England and E. G. Eberle.
 No. 75. Drexel W. Haines, 134 Douglas Ave., Freeport, Ill., rec. by E. G. Eberle and W. B. Day.
 No. 76. Lionel T. Andrews, 3917 Syvset St., Woodhaven, L. I., rec. by Charles H. LaWall and Charles S. Herron.
 No. 77. Emiliano Delgado y Valdes, Salud n° 60 bajos (Laboratorio), Havana, Cuba, rec. by J. G. Diaz and Jose P. Alacan.
 No. 78. Carl A. Seuring, 1501 E. 67th St., Chicago, Ill., rec. by Charles Orr and Clyde M. Snow.
 No. 79. George V. Haering, 570 W. Madison St., Chicago, Ill., rec. by Wm. Gray and Wm. B. Day.
 No. 80. Frank H. Ahlborn, 1144 Bryn Mawr Ave., Chicago, Ill., rec. by Wm. B. Day and Wm. Gray.
 No. 81. Dr. A. Rodriguez Castro, Calle Separacion No. 113, Santo Domingo, Republica Dominicana, rec. by R. L. Greene and Emil Reyer.
 No. 82. Haig Bedros Yardumian, 48 Montgomery St., Boston, Mass., rec. by Bagdasar Goolkasian and Wm. B. Day.
 No. 83. Michael Jacobson, 2600 N. Halsted St., Chicago, Ill., rec. by Charles Orr and Wm. Gray.
 No. 84. Peter A. Mandabach, 608 S. Dearborn St., Chicago, Ill., rec. by H. M. Whelpley and J. W. England.

J. W. ENGLAND, *Secretary.*

415 N. 33RD STREET.

CHARLES CASPARI, JUNIOR.

1850-1917.

AN APPRECIATION BY THE AMERICAN PHARMACEUTICAL ASSOCIATION.

For the loyal and unselfish devotion of more than half of the years of his active manhood to the editing of its publications; for the twenty-three years of careful and conscientious service as its Secretary; for his helpful attentions and courtesies to its officers and members, the American Pharmaceutical Association desires, through a duly authorized committee, to make full and ample acknowledgment to his family, to pharmacy and to the world.

The Association would also give expression to the deep sorrow the death of Dr. Caspari brought to all its members who knew him and would pay just tribute to his unusual abilities, broad attainments, sterling character and pure life.

To such an end and for the purposes therein stated, the foregoing is most respectfully offered.

(Signed) H. P. HYNSON, *Chairman.*
 JOHN C. MUTH,
 GEORGE M. BERINGER,
 CASWELL A. MAYO,
 J. H. BEAL.

January 30, 1918.

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON THE UNITED STATES PHARMACOPOEIA.

It is with much interest and satisfaction that the members of this Committee have perused the pages of the new U. S. Pharmacopoeia and have noted the various comments thereon that have appeared from time to time in the pharmaceutical press.

We are very glad to note that comments and reviews as have appeared are on the whole kindly and that this Ninth Revision continues to maintain for the U. S. P. the foremost position among the pharmacopoeias of the world.

With the increase in the magnitude of the work of revision, the time required must necessarily be greater and, owing to the rapid growth of our materia medica, it would seem that a revision at less remote intervals or at least a supplement would be desirable.

The admissions to the U. S. P. on the whole seem to be well chosen and conservative. Regret is expressed by some members of the medical profession that acetyl salicylic acid was not included in this list. Concerning the deletions there is a greater difference of opinion. Most physicians dislike to have a remedy that they are accustomed to use dropped from the official list, and such deletions do not seem to us to add to the usefulness and purpose of the U. S. P.

In the short time at the disposal of the Committee this year it has been impossible to cover seriatim the entire scope of the new book. The Committee does not desire to make any general or specific recommendations at this time. The following observations, however, have been made by the members and are hereby recorded for future reference.

NOMENCLATURE.

That the botanical names employed in the Pharmacopoeia should be in accord with the best knowledge and the best usage of botanists goes without saying. An article has been recently published by Mr. O. A. Farwell in the *Druggists Circular* for April 1917, criticising in detail the botanical nomenclature of the U. S. P. IX. Mr. Farwell's work has been done with intelligence and thoroughness, the majority of his criticisms pointing out needed changes. His article is timely and should open the way for more extended remarks and some lively discussions among the botanists.

It seems particularly unfortunate that the Pharmacopoeia should for any real or fancied reason adopt titles that may lead to confusion or to depart from an established custom as has been done in the following instances:

Ferri et Quininae Citras U. S. P. IX is entirely different from the *Ferri et Quininae Citras* of the U. S. P. VIII.

Ferri Phosphas U. S. P. IX is not really ferric phosphate and tends to confuse the ferric phosphate of the pharmacist with the ferric phosphate of the chemist.

Cascara Sagrada U. S. P. IX. What is the precedent for this change?

VEGETABLE DRUGS.

The following errors have been noted:

Cascara Sagrada. In the description of the sections (second paragraph, third line) the stone cells are described as being in the outer bark. They are usually considered as being in the middle bark, the cork being considered the outer bark.

Foeniculum. In the description of the sections (second paragraph, tenth line) the two vitae are on the commissural surface and not on the dorsal surfaces as stated.

Viburnum Prunifolium. The drug should be defined as the dried bark of the root since that is the article subsequently defined.

ASSAY PROCESSES.

We are pleased to note that the assay processes both organic and inorganic have been greatly improved and extended. The following points have come to our notice:

Acetonum. To insure accuracy, should read, "Partially fill with distilled water a stoppered weighing bottle and note the exact tare; then introduce about 1 mil of acetone, stopper and weigh accurately."

Acidum Aceticum Glaciale. In the assay the directions should read, "Introduce into a stoppered weighing bottle about 10 mls of distilled water and take the exact tare of the whole, add about 2.5 mls of glacial acetic acid and weigh accurately, etc." The text calls for simply a "tared flask" to which 10 mls of distilled water (weight deduced presumably from its measure and the stopper) comes in as an afterthought apparently.

Acidum Hydrochloricum and Acidum Nitricum. Comments similar to those under *Acidum Aceticum Glaciale* apply equally well to these.

Acidum Citricum. This is distinctly an efflorescent substance although the pharmacopoeias generally describe it as "permanent in the air" or at most as efflorescent at temperatures above 30° C. As long as it remains in translucent crystals it may be regarded as uneffloresced but when in powder this cannot be assumed and we know that the crystals in time become quite opaque from efflorescence unless kept in well closed containers. In the assay, therefore, the sample should always be rendered anhydrous before weighing, by drying at 100° C. to constant weight. The assay will then show in the dried salt not less than 99.5 percent of $C_6H_8O_7$. Each mil of normal potassium hydroxide V. S. will correspond to 0.06402 Gm. of $C_6H_8O_7$ and each Gm. of the dried acid will correspond to 15.56 mls of normal potassium hydroxide, V. S. (if pure, 15.62 mls).

Acidum Sulphuricum. After mixing 1 volume of the acid with 50 of distilled water, is it necessary to cool the mixture before titrating?

Acidum Sulphuricum Aromaticum. It has been shown that the use of a reflux condenser in the preparation of a sample for assay is a mistake. The proper procedure is to add to the acid three times its volume of distilled water and heat in an uncovered beaker on a boiling water bath for four hours to effect hydrolysis of the ester present. Titration will then show correctly the quantity of sulphuric acid originally present. The results obtained from the assay in the text are much too low.

Aconitum. Dr. H. Engelhardt points out that the assay processes for both the fluidextract and solid extract and possibly the tincture should be thoroughly revised, it being impossible to obtain concordant results when using cochineal as indicator. Methyl orange appears to give better results. A detailed report is forthcoming.

Alkaloids and Alkaloidal Drugs. In a few instances a rubric is given for the alkaloids and alkaloidal salts. This might well be extended to all of them since it is a well-known fact that many contain an excess of water and, etc. It is becoming more and more imperative to qualitatively examine the alkaloidal residues obtained in the assay of galenical preparations. Some attention to this is advocated for the U. S. P. X.

In several of the assay processes of the U. S. P. IX for fluidextracts and tinctures, purified oak sawdust is employed. This oak sawdust is not so easily obtained as one without experience might imagine. Dr. A. B. Lyons suggests that cheese cloth is a convenient substitute easily obtained and easily manipulated.

Alumen. Under the assay process the surprising statement is made that "the aluminum oxide obtained corresponds to not less than 99.5 percent of alum assayed." The meaning is that the aluminum oxide obtained corresponds to $AlNH(SO_4)_2 + 12H_2O$ or $AlK(SO_4)_2 + 12H_2O$ as the case may be, equal in weight to 99.5 percent of the alum taken for the assay.

Alumen Exsiccatum. Although it is required that the label state whether it is potassium or ammonium alum from which the exsiccated product is made, there is no intimation that one differs materially from the other. It requires that not more than 2.5 percent of the dried alum be insoluble in water. Of course if made from potash alum it would be wholly soluble. There seems to be no reason why an allowance of 3.5 percent for impurities should be made in case a potassium alum is used. Query: Does the insoluble residue consist of Al_2O_3 ? If so, it should be strongly ignited before weighing. Then since the aluminum oxide constitutes something like 20 percent of the salt, the amount of impurity indicated will be much greater than seems to have been assumed in preparing the article on Exsiccated Alum.

Ammonii Carbonas. In the assay the reading should be, "Put into a stoppered weighing bottle about 10 mls of distilled water, ascertain the exact tare; add about 2 Gm. unaltered, translucent ammonium carbonate and weigh accurately. When the salt is dissolved, transfer the solution to a "suitable beaker or flask with the aid of about 40 mls of distilled water, add 50 mls of normal sulphuric acid, V. S., and titrate the excess of acid with normal potassium hydroxide, V. S. using methyl orange T. S. as indicator."

Aqua Ammoniae Fortior. It would be well to require that a stoppered weighing bottle be used in weighing the sample for assay, as in the case of water of ammonia, 10 percent.

Bismuth Salts. The method for the estimation of the bismuth oxide in these is a rather crude one. A convenient electrolytic method would be acceptable.

Caffeina Citrata. In the third line from the bottom of the assay, insert before "Citrate of Caffeine" the word "dried."

Caffeinae Sodio-Benzoes. In the assay for sodium benzoate the statement should be made that "each mil of half-normal sulphuric acid V. S. used corresponds to 0.07202 Gm. of $\text{NaC}_7\text{H}_5\text{O}_2$. Each Gm. of the dried mixture corresponds to not less than 6.94 nor more than 9.50 mls of half-normal sulphuric acid V. S." Note that in the assay of sodium benzoate, p. 383, the salt is dried at 110°C ., while in this case the drying is done at 80°C .

Hydrargyri Iodidum Rubrum. Only the electrolytic method is given. An alternate method would be acceptable.

Liquor Cresolis Compositus. A method for the assay of this preparation is needed, especially a method for the estimation of the amount of water in the product.

Liquor Potassii Hydroxidi. There is something puzzling about the expression at the top of page 253: "The solution shows not more than 5.5 percent of alkalinity calculated as KOH (carbonate)." The word "carbonate" should be deleted or else explained. As a matter of fact this test should form part of the assay process, which should be so performed as to show the presence of not less than 4.5 percent of KOH, and to limit the total alkali, including the carbonate, to the equivalent of 5.5 percent. This comment applies equally to *liquor sodii hydroxidi*.

Opium and its Preparations. A reduction in the amount of slaked lime used in the assay would seem feasible.

Resina Jalapae. In the determination of the solubility of the resin in chloroform and in ether, no account is taken of the amount likely to be absorbed by the filter paper. The evaporation of an aliquot part would give more concordant results.

Spiritus Ammoniae Aromaticus. An assay process is desirable since an appreciable loss of ammonia is liable to occur during the manufacturing process.

Tinctura Iodi. The heating of the evaporated tincture until the free iodine is expelled is liable to produce losses. It is much simpler to convert the iodine into halide by thiosulphate or preferably sulphite, titrating the total amount of halide, etc.

Zincum. In the electrolytic estimation of zinc it is recommended to use a nickel dish or a platinum dish upon which a thin layer of silver or copper has been previously deposited. Dr. H. Engelhardt points out that a mercury cathode cup gives just as good results and is even more rapid than the nickel dish method.

BIOLOGICAL ASSAYS.

The value of these has been officially recognized for the first time in the U. S. P. IX. This is a move in the right direction, but it is very unfortunate that the only compulsory standard, that of cannabis, should lack the essence of standardization, namely a standard for comparison. Why not have the United States Public Health Service establish the standard here as in the case of antitoxins?

PREPARATIONS.

But little comment on these is believed to be justifiable at this time.

Collodium Flexile. Some doubt is expressed as to the advisability of the substitution of camphor for Canada balsam.

Emplastrum Plumbi. Some experiments have indicated that it requires about five hours' boiling to complete the reaction in this preparation. Since constant stirring with a wooden spatula is also one of the requirements, this formula is not likely to become popular with the retail pharmacist nor to stimulate in him an interest in manufacturing pharmacy.

Unguentum Iodi Although this ointment is not to be dispensed unless it has been recently prepared, a rapid absorption of the iodine takes place and experiments with vehicles other than lard are suggested.

EFFLORESCENT SALTS.

In the case of a considerable number of more or less efflorescent salts the new Pharmacopoeia has abandoned the principle of the "Rubric of Purity," heretofore consistently followed in dealing with nearly all mineral salts, and has established new standards essentially fallacious. The

fallacy depends upon the fact that assay processes are prescribed for such salts without requiring that they be rendered anhydrous, or at least that they be brought to a definite condition of hydration before the sample taken for assay is weighed.

The list of salts to which this criticism applies includes the following which will be discussed seriatim: Copper sulphate, ferrous sulphate, magnesium sulphate, sodium sulphate, zinc sulphate, sodium acetate, sodium arsenate, sodium borate, sodium phenolsulphonate, sodium phosphate, sodium thiosulphate, lead acetate, zinc acetate, zinc phenolsulphate, zinc valerate, and potassium and sodium tartrate.

Cupri Sulphas. Crystallized copper sulphate, which is the official salt, contains 5 molecules of water of crystallization. Exposed to dry air at ordinary temperature, it loses by efflorescence 2 H₂O; at 100° C. the total loss amounts to 4 or 5 molecules of water leaving a monohydrated salt. It is in this condition that a sample should be weighed for assay, if a definite rubric is to be fixed. Instead the U. S. P. IX starts with the salt in the condition in which it happens to be. It may contain hygroscopic moisture or on the other hand it may have lost a part of its water of crystallization. The apparent "impurity" (calculating the salt as CuSO₄ + 5H₂O) may be high including water (hygroscopic) or it may be low (even a minus quantity), owing to loss of water of crystallization. The Pharmacopoeia determines in the sample taken, not CuSO₄ + 5H₂O but simply CuSO₄ and proceeds to deduce a rubric standard. The salt contains, it says, not less than 62.97 percent of CuSO₄ corresponding to not less than 98.5 percent of the crystallized salt. One infers that this permits a maximum of 1.5 percent "impurity" in the salt. The fallacy becomes apparent when we attempt to reason in a similar manner from the maximum (66.79 percent) amount of CuSO₄ that may be permitted, since this would correspond with 104.48 percent of CuSO₄ + 5H₂O, showing a minus impurity of 4.48 percent. In fact, the assay has told us nothing about the presence of fixed impurities in the salt. In order to make this clear suppose that a sample of copper sulphate containing 0.5 percent of fixed impurity has lost by efflorescence 2 percent of water, the assay will show the presence of apparently 101.5 percent of CuSO₄ + 5H₂O. Or, suppose that a salt containing 2 percent of fixed impurities has lost by efflorescence 1 percent of water. Assay will show apparently nearly 99 percent purity.

Clearly the assay is of no value as a criterion of the real purity of the sample. It seems only to show whether or not the salt conforms to an arbitrary fixed standard whose significance is uncertain. It would be far more rational to make the requirement depend upon the amount of residual H₂O in the salt. A sample dried to constant weight at 110° C. must lose not less than—nor more than—of its weight. However, the only scientific plan is to establish as usual a rubric of purity and provide an assay process for determining the degree of purity, then if necessary there may be also provided a limit of permissible efflorescence.

The assay would then be made as follows: "Dissolve about 1 Gm. of copper sulphate, previously dried to constant weight at 110° C. (a tentative figure) and accurately weighed, in 50 mls of distilled water, add 4 mls of acetic acid and 3 Gm. of potassium iodide, and titrate the liberated iodine with tenth-normal sodium thiosulphate, V. S., starch T. S. being used as indicator. It shows in the dried salt not less than 99.5 percent of CuSO₄ + H₂O. Each ml of tenth-normal sodium thiosulphate, V. S., corresponds to 0.017766 Gm. of CuSO₄ + H₂O. Each Gm. of dried copper sulphate corresponds to not less than 56.00 mls of tenth-normal sodium thiosulphate V. S." If we wish to limit the permissible amount of efflorescence, direct to "weigh accurately about 1 Gm. of the copper sulphate and dry it to constant weight at 110° C. It loses not less than 9 percent of its original weight." It is doubtful however if multiplying the requirements of this kind is expedient. In the case of copper sulphate it seems particularly unnecessary to resort to a quantitative standard. If the official salt is in the form of crystals, as it may well be, efflorescence shows itself at once by a striking change in color. Only uneffloresced crystals should be dispensed. Even in preparing Fehling's solution, the official directions are merely to use "carefully selected small crystals of cupric sulphate" (Cupri Sulphas, U. S. P.) though, perhaps, a method of standardization would be desirable here; posological considerations, however, do not demand greater exactness than can be secured by attention to the physical properties of the salt.

Ferri Sulphas. The facts regarding this salt are closely analogous to those regarding copper sulphate. Its crystals have a distinctive color, strikingly changed by efflorescence. It loses all but one molecule of its water of crystallization at a temperature not much above 100° C. It differs from the copper salt in that it tends to absorb oxygen, while the latter is subjected rather to a partial deoxidation. The analysis of ferrous sulphate for fixed impurities, providing oxida-

tion has not taken place, may be made exactly as in the case of copper sulphate, and the description excludes an oxidized salt. The dried salt retains one molecule of water having, therefore, a molecular weight of 169.93.

The directions for the assay would be: "Dissolve about 0.6 Gm. of ferrous sulphate, previously dried to constant weight at 115°C . and accurately weighed, in about 25 mls of diluted sulphuric acid and titrate with tenth-normal potassium permanganate V. S. until a permanent pink color is produced. It shows not less than 99.5 percent of $\text{FeSO}_4 + \text{H}_2\text{O}$. Each ml of tenth-normal potassium permanganate, V. S., corresponds to 0.016993 Gm. of $\text{FeSO}_4 + \text{H}_2\text{O}$; each Gm. of the dried salt corresponds to not less than 58.5535 mls (100 percent = 58.8478)." (Of course, any ferric salt would be included in the impurities thus determined.) It hardly seems necessary to add a quantitative test for loss of water by efflorescence. The statement in the text (first paragraph of fine print) is sufficient.

Note that in the Dried Ferrous Sulphate no attempt is made to ascertain the "purity" of the salt. The granulated salt is of necessity free from such fixed impurity but should be freshly prepared.

Magnesii Sulphas. Here again we have a salt whose crystals when heated to 150°C . lose all but one molecule of their water of crystallization. The suggested assay would be: "Dissolve about 0.6 Gm. of magnesium sulphate, previously dried to constant weight at 150°C ., in 100 mls of distilled water, etc." (See U. S. P., p. 265.) "The weight of magnesium pyrophosphate obtained corresponds to $\text{MgSO}_4 + \text{H}_2\text{O}$ amounting to not less than 99.5 percent of the weight of the dried salt taken for assay. Each Gm. of the dried salt corresponds to not less than 0.80057 Gm. of magnesium pyrophosphate (pure = 0.80459). Each Gm. of magnesium pyrophosphate corresponds to 1.118583 Gm. of $\text{MgSO}_4 + \text{H}_2\text{O}$." The question of what degree of purity should be required for magnesium sulphate is open for discussion. The B. P. permits of 2.3 percent impurity which certainly seems large. The U. S. P. VIII permitted only 0.3 percent which certainly is too stringent. German and Swiss Pharmacopoeias provide a dried magnesium sulphate containing 23.69 percent of water, corresponding approximately to the formula $\text{MgSO}_4 + 2\text{H}_2\text{O}$. This is to be dispensed whenever magnesium sulphate in powder is required. Although this plan seems preferable to the requirement that the salt shall not have lost by efflorescence more than a certain percent of water (to be ascertained by a time-consuming quantitative operation), it does not seem advisable to confuse retail dealers with an alternative form of magnesium sulphate which they are to remember to dispense in place of the familiar epsom salt. It is to be remembered that this is a drug most frequently self-prescribed and sold very commonly in rural districts by persons not professional pharmacists. All things considered, it seems sufficient to describe the official salt as consisting of "crystals which are translucent" and add that "if they have become opaque by efflorescence they should not be employed for any pharmaceutical use, except after recrystallization." If any limit is to be prescribed for the permissible amount of efflorescence, the determination should be made by drying a sample of the salt at a temperature of 150°C ., when the loss in weight should be not less than, say, 8 percent.

Sodii Sulphas. This salt effloresces very rapidly in dry air. Moreover the proportion of water of crystallization it contains (10 molecules = 55.91 percent) is very large. Since it loses the whole of this water by drying at 100°C ., determination of absolute purity in the salt is a simple enough matter. A purity rubric of 99 percent in the anhydrous salt is, perhaps, reasonable and should be described as follows: "Assay: Dissolve about 0.5 Gm. of sodium sulphate, previously dried to constant weight at 120°C . and accurately weighed, in 100 mls of distilled water, and etc.," following the language of the text, but making the statement that "it indicates in the dried salt not less than 99 percent of Na_2SO_4 . One Gm. of $\text{BaSO}_4 = 0.60859$ Gm. Na_2SO_4 . One Gm. of dried sodium sulphate = 1.6267 Gm. BaSO_4 (pure = 1.64313 Gm.). The comments above on Magnesium Sulphate apply more pertinently to Glauber's salt which is not now often prescribed for human patients. The maintaining of a limit of permissible efflorescence seems to be wholly impracticable. Of course, the direct determination of the residual water, by drying the sample to constant weight, is much to be preferred to the determination of the sulphuric radical as now proposed in the Pharmacopoeia. It would be better to make the completely effloresced salt official if it is found that this is not too hygroscopic. In such case a dried salt of definite composition, having little tendency to absorb or give up water, might be substituted for the dehydrated salt, just as in the U. S. P. VIII ordinary crystallized sodium carbonate was replaced by the more

permanent monohydrated variety. It is to be noted that the German and Swiss Pharmacopoeias have a dried sodium sulphate (similar to dried magnesium sulphate).

Zinci Sulphas. This salt is similar in constitution and behavior to the sulphates of iron (ferrous) and magnesium. A rubric of purity should be provided, and the assay should be made on a sample, dried to constant weight at 120°C . before weighing, having, therefore, the composition of $\text{ZnSO}_4 + \text{H}_2\text{O}$. This yields in the assay an amount of ZnO corresponding to 99.5 percent of $\text{ZnSO}_4 + \text{H}_2\text{O}$ in the dried salt. One Gm. $\text{ZnO} = 2.2054$ Gm. of $\text{ZnSO}_4 + \text{H}_2\text{O}$. One Gm. ZnSO_4 dried = 0.45116 Gm. ZnO (pure = 0.453426). The comments under magnesium sulphate apply to zinc sulphate.

Potassii et Sodii Tartras. It is doubtful if this salt is sufficiently efflorescent to make it necessary to provide a limit of permissible water of crystallization. It occurs in the market, however, most commonly in the form of powder which is recognized as official. For assay, transparent crystals (powdered and pressed between folds of filter paper) may be weighed without further drying. The powder cannot be dealt with quite as satisfactorily. It may be recrystallized, it is true, but in doing so a considerable amount of the impurities will be left behind in the mother liquid. The alternative is a cautious drying of the salt to constant weight at a temperature raised gradually to 215°C ., being careful not to carbonize it to any degree. Probably the desiccation can be facilitated by adding repeatedly small quantities of alcohol. Assuming that a satisfactory way can be found to accomplish the desiccation without injuring the organic salt, the further procedure for determining the purity of the salt will be obvious. If we are to rely upon weighing the transparent crystals as $\text{KNaC}_4\text{H}_4\text{O}_6 + 4\text{H}_2\text{O}$, the assay will be conducted as in the text, but the statement will be: "It shows not less than 99 percent of $\text{KNaC}_4\text{H}_4\text{O}_6 + 4\text{H}_2\text{O}$. Each mil of half-normal sulphuric acid, V. S., used corresponds to 0.07055 Gm. of $\text{KNaC}_4\text{H}_4\text{O}_6 + 4\text{H}_2\text{O}$. Each Gm. of potassium and sodium tartrate corresponds to not less than 14.033 mls of half-normal sulphuric acid (pure = 14.1743 Gm.)."

Sodii Arsenas. This salt loses the whole of its water of crystallization (40.41 percent) at 150°C . It should be thus dried to constant weight before weighing to determine purity. For the assay take about 0.3 Gm. of the dried salt accurately weighed. The statement will be: "It shows not less than 98 percent of Na_2HAsO_4 in the dried salt. Each mil of tenth-normal sodium thiosulphate, V. S., used corresponds to 0.009298 Gm. of Na_2HAsO_4 . Each Gm. of dried sodium arsenate corresponds to not less than 105.39 mls of tenth-normal sodium thiosulphate, V. S. (pure = 107.544 mls)." It does not seem necessary to fix a limit of permissible efflorescence for this salt. The description calls for the uneffloresced salt (transparent) which is to be preserved in well closed containers. Then, if a product assumably uniform in strength is desired, we find provided the exsiccated salt. It is really not desirable that both of these forms should be official, one nearly double the strength of the other. The dried salt is the one that should be retained. As long as there are two, errors in dosage are sure to occur. It is interesting to note that the International Pharmaceutical Congress adopted $\text{Na}_2\text{HAsO}_4 + 7\text{H}_2\text{O}$ as sodium arsenate.

Sodii Acetas. At 120°C . it loses all of its water of crystallization (39.72 percent). The salt should be dried accordingly before weighing. It shows not less than 99 percent of $\text{NaC}_2\text{H}_3\text{O}_2$ in the dried salt, etc. Each mil of dried sodium acetate corresponds to not less than 24.14 mls of half-normal sulphuric acid (pure = 24.384 mls). (If any efflorescence limit is prescribed it may well be required merely that the salt lose, in drying to constant weight at 120°C ., not less than 32 percent of its weight.) The description of the official salt should include only colorless transparent crystals. Then if the salt is preserved in well-closed containers it will not effloresce sufficiently to affect the dosage materially.

Sodii Boras. When dried thoroughly and the residue heated to redness it becomes anhydrous, losing, if pure, 47.14 percent of water. Instead of reducing the salt to an anhydrous condition before weighing a portion for assay, it is better to powder about 15 Gm. of the sample and weigh out separately two portions, one of about 5 Gm. the other of about 1 Gm., both to be weighed accurately. Dry the smaller portion and heat it to the point of igneous fusion. From the loss in weight of this sample, determine the weight of the larger sample in anhydrous condition. Use this portion for the assay as directed in the text, changing the reading to: "It shows in the anhydrous condition not less than 99 percent(?) of $\text{Na}_2\text{B}_4\text{O}_7$. Each Gm. of sodium borate (weighed

in anhydrous condition) corresponds to not less than 9.704 mls of normal hydrochloric acid V. S. (if pure, 9.802 mls.) Preferably, take for the assay about 1 Gm. of the undried salt, and use for the titration tenth-normal hydrochloric acid. The equivalent for 1 Gm. of the fused salt will then be 97.04 mls of the volumetric acid. As limit of efflorescence, 1 Gm. of the salt when dried and heated to fusion must lose not less than 40 percent (42 percent) of its weight. Only colorless crystals should be official. In such cases it should suffice merely to require that the salt be kept in well-closed containers.

Sodii Phenolsulphonas. Dried at 120° C. the salt loses the whole of its water of crystallization (15.52 percent if pure). It should be thus dried before it is weighed for assay. It shows in the dried salt not less than 99 per cent of $\text{NaC}_6\text{H}_4\text{O}_3\text{SO}_3$. Each Gm. of dried sodium phenol-sulphonate corresponds to not less than 201.93 mls of tenth-normal bromine, V. S. (if pure, 203.97 mls). The official salt should consist of colorless transparent crystals and then if kept in well-closed containers it should not lose water sufficiently to affect the dosage.

Sodii Phosphas. This is really a very efflorescent salt. For assay as to purity, it may be dried to constant weight at 110° C. (if pure it loses 60.35 percent). Weigh about 0.2 Gm. of the dried salt and proceed as in the text. It shows in the dried salt not less than 98 percent of Na_2HPO_4 . Each Gm. of the dried salt corresponds to not less than 206.97 mls of tenth-normal silver nitrate, V. S. (if pure, 211.19 mls). The official salt must consist of clear crystals showing not more than traces of efflorescence. The effloresced salt is not to be dispensed unless first recrystallized.

Sodii Phosphas Exsiccatus. "It is a poor rule that does not work both ways," says the proverb. Sodium phosphate is keen to get rid of its water of crystallization. Equally eager is the exsiccated salt to attract to itself moisture from the air. In this case the U. S. P. IX requires that the former salt shall not be gratified in its self-abnegation beyond a certain narrow limit. In the other no objection is made to the acquisition of the water by the exsiccated salt, except that interposed by a well-closed container. However, there would seem to be a better plan than that of providing two forms of sodium phosphate so diametrically opposed in their behavior. There is an intermediate phosphate containing 7 molecules of water instead of twelve that is satisfied with its allotment of that compound. Why not make this one the official compound? Perhaps the simplest plan would be to dry the ordinary crystals until they had lost approximately 25 percent (25.145 percent) of their weight, requiring that when further dried to constant weight this salt shall lose approximately 47 percent (47.03 percent) of its weight. The assay for the determination of the purity would be the same as that for the present official salt and, for that matter, for the exsiccated sodium phosphate as well.

Sodii Thiosulphas. The crystallized salt when pure contains 36.29 percent of water of crystallization. Whether it can be brought to the anhydrous condition without decomposition is doubtful, but, if so, it is an easy matter to determine the purity of the sample by drying and titrating the residue with tenth-normal iodine, V. S.

If the plan of drying to constant weight is impracticable, the salt can still be brought to the form of sulphate and its weight compared with the theoretical yield of that salt. Only crystals should be official. These, when kept in well-closed containers in a cool place, are not liable to change materially.

Plumbi Acetas. It is stated that lead acetate loses its water at 40° C.; whether it also loses some acetic acid is not stated. Precaution would have to be taken against absorption of CO_2 if dehydration of the crystals should be attempted. Granted that this is practicable, the assay of the present text may serve for the determination of purity of the salt (rubric). The dehydrated salt being used, it shows in the dried salt not less than 99.5 percent (rather rigid) of $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2$. Each Gm. of the dried salt corresponds to not less than 61.20 mls of tenth-normal oxalic acid, V. S. (if pure 61.51 mls). The description calls for crystals of crystalline masses. If the crystals are transparent or translucent, showing not more than traces of efflorescence (or required to) and dissolve in recently boiled distilled water to a clear, or a most slightly opalescent solution, it seems hardly necessary to fix a limit of permissible efflorescence. It should be noted that the assay assumes complete solubility of the sample since the solution is not filtered before adding the oxalic acid, V. S.

If carbonate is present it counts in the assay as acetate. This is why care must be taken in drying the sample to exclude CO_2 .

Zinci Acetas. The salt is somewhat unstable as shown by its acetous odor. It is doubtful whether it can be deprived of its water of crystallization without material loss of acetic acid. The assay may be based upon the uneffloresced crystals, the salt being recrystallized if necessary. The water of crystallization is only 16.42 percent so that it hardly seems necessary to establish a maximum of permissible efflorescence. An article which is in uneffloresced crystals and conforms to the description given should be satisfactory. If the crystals have effloresced, the salt may be recrystallized from water containing some acetic acid.

Zinci Phenolsulphonas. The salt is said to give up the whole of its water of crystallization at 125° C. (25.94 percent, if pure). If the dried salt is used for assay, the amount of zinc oxide obtained corresponds to not less than 99.5 percent of the dried salt. Each Gm. of the dried salt corresponds to not less than 0.1967 Gm. of ZnO (0.1977, if pure). The salt should be used in uneffloresced condition. A standard of admissible efflorescence is not advisable, but it would be well in this case as in similar cases to ascertain what quantity of water the salt will normally lose under ordinary conditions, and, if necessary, make the official salt a "dried" salt not liable to undergo much change if kept under ordinary conditions.

Zinci Valeras. It is noticeable in the case of this salt that nothing is said about drying the sample before weighing. There is an obvious reason for this but if the assay is to mean anything, the official salt should at least always be in the crystallized form, and it would seem that under the circumstances (possible presence of notable quantity of moisture) a requirement of the equivalent of 99 percent of the crystalline salt is too stringent. An arbitrary requirement like this may be made but it does not call for a 99 percent "purity" of the salt.

SUMMARY.

The method of dealing with efflorescent salts adopted in the U. S. P. IX is faulty in several particulars.

I.—It appears to supply for such salt a rubric of purity but in fact does nothing of the kind. The words "Corresponding to not less than—percent of the crystallized salt" should in each instance be deleted as false and misleading. With this change the text furnishes a standard of "strength," which possibly is better than none.

II.—The exact limit for permissible loss of water of crystallization by efflorescence may seem in theory a desirable thing; in practice it can accomplish little good, while it is liable to abuse in the hands of over-zealous inspectors. The permitted loss in each case is approximately 5 percent so that a general statement in the introductory notices of the U. S. P. similar to that with regard to limitation of hygroscopic moisture (page xlvii near the bottom) would suffice.

III.—There seems to be a better plan. In nearly every case if the official salt is in crystalline form the efflorescence is readily discernable and it is easy to declare that only the uneffloresced salt is to be dispensed (or a salt showing not more than traces of incipient efflorescence).

IV.—In the exceptional cases where efflorescence is rapid and results in loss of more than 5 percent of the weight of the salt a different plan must be adopted. It may be that the salt can be induced to crystallize with a smaller proportion of water of crystallization, showing in that form a little or no tendency to effloresce. We have already substituted in the U. S. P. the monohydrated salt for the exceedingly efflorescent crystals of ordinary sodium carbonate, a capital improvement. It is possible that a sodium phosphate containing only seven molecules of water of crystallization may with equal advantage replace the present official salt.

V.—However that may be, it is certainly possible to substitute for the troublesome efflorescent salt the already effloresced salt. Of course, it would be necessary to fix a standard to which manufacturers would have to make their product conform. Such product would undergo but little change if kept in well-closed containers. Some of the European pharmacopoeias have made official a "dried salt" to be employed in the place of the crystals in mixtures in powdered form, *e. g.*, *Natrium Sulphuricum Siccum* and *Magnesium Sulphuricum Siccum* of the German Pharmacopoeia. Of course, the dried salt is very much stronger than the crystals, so that the one should not be substituted for the other, Gm. for Gm. This would not solve our problem, indeed, we have already exsiccated forms of sodium phosphate and ferrous sulphate but these again do not fill the bill. The exsiccated sodium phosphate, for example, is as greedy to absorb moisture as the crystallized is eager to part with it. The suggestion of an effloresced salt to take the place of both the other forms is at least worthy of consideration.

VI.—Finally there should be provided for each of the salts in question a true "Purity Rubric."

DELIQUESCENT SALTS.

Calcii Chloridum. A purity rubric for this salt is wanting. The only requirement is that "the salt without previous drying shall show the presence of not less than 75 percent of CaCl_2 ." The salt is described as "very deliquescent" and yet it is required to show on assay more CaCl_2 than it would contain if but one percent of hygroscopic moisture were present, the salt otherwise consisting of pure $\text{CaCl}_2 + 2\text{H}_2\text{O}$. A better requirement is that of the British Pharmacopoeia, *viz.*, "when dried at 200°C . the salt shall lose not more than 5 percent of moisture." Preferably establish a purity rubric perhaps of 99 percent. For the assay direct that the salt be dried at 200°C . before weighing, every precaution being taken to prevent absorption of moisture during the weighing. Proceed as in the text but the statement will read: "It shows in the dried salt not less than 99 percent of $\text{CaCl}_2 + 2\text{H}_2\text{O}$. Each mil of tenth-normal silver nitrate, V. S., corresponds to 0.007351 Gm. of $\text{CaCl}_2 + 2\text{H}_2\text{O}$ and each Gm. of calcium chloride corresponds to not less than 134.68 mils of tenth-normal silver nitrate, V. S. (if pure, 136.036 mils)." (Include also test like the B. P. limiting hygroscopic moisture.)

Calcii Bromidum. This case is closely analogous to that of calcium chloride, except that a somewhat larger percentage of impurity (presumably chloride) has to be tolerated. Probably a rubric of 98.5 percent would be reasonable. Then the assay would be conducted as in the case of calcium chloride, drying the salt at 200°C . before weighing. Then, "the assay will show in the dried salt not less than 98.5 percent of $\text{CaBr}_2 + 2\text{H}_2\text{O}$. Each mil of tenth-normal silver nitrate, V. S., corresponds to 0.011797 Gm. of $\text{CaBr}_2 + 2\text{H}_2\text{O}$. Each Gm. of calcium bromide corresponds to not less than 83.495 mils nor more than 85.536 mils of tenth-normal silver nitrate V. S. (if pure, 84.767 mils). (Also when dried to constant weight at 200°C . the salt loses not more than 4 percent(?) of hygroscopic moisture.)

Lithii Bromidum. It is very doubtful if it is practicable to dry this salt without loss of bromine. If it is, a rubric of purity may be fixed as in the case of calcium chloride, otherwise we may be contented with merely determining the percentage of lithium bromide as in the text, but only extraordinary precautions will prevent further absorption of moisture so that the salt will sooner or later fail to fulfil the U. S. P. requirement. Note that the text permits the presence of nearly 1 molecule of water (one molecule = 17.18 percent).

Zinci Chloridum. A purity rubric is perhaps impracticable owing to the tendency of this salt to form oxychloride. The present assay may, therefore, be accepted as sufficiently safeguarding the purity of the product. Possibly 95 percent is too high a requirement. At all events it is evident that care must be exercised in selecting a fair sample for weighing. Instead of taking 0.3 Gm. as the text prescribes, we should start with a much larger sample, not less than 2.5 Gm., of which, after dissolving and making up to a definite volume, an aliquot corresponding to 0.3 Gm. of the original sample may be taken for assay.

MISCELLANEOUS COMMENTS.

Ammonii Iodidum. It is stated in the text that the salt soon becomes yellow or yellowish brown on exposure to air and light, but nothing is said of its unfitness for use in this condition, or of any remedy. It would seem that merely drying it at a temperature of 110°C . should render it fit for dispensing.

Antimonii et Potassii Tartras. The salt is efflorescent, therefore it should be rendered anhydrous for the assay by drying it to constant weight at 110°C . The dried salt shows not less than 98 $\frac{1}{2}$ percent(?) $\text{K}(\text{SbO})\text{C}_4\text{H}_4\text{O}_6$. Each mil of tenth-normal iodine, V. S., is equal to 0.016167 Gm. of $\text{K}(\text{SbO})\text{C}_4\text{H}_4\text{O}_6$. One Gm. of the dried salt requires 60.93 mils of tenth-normal iodine, V. S. (if pure, 61.856 mils).

Ferri et Ammonii Citras. In this and in the next item, the description "Ferric citrate rendered more readily soluble by the presence of ammonium citrate" is objected to. It seems hardly true to say that the product is ferric citrate when it is really a chemical compound (no doubt), of which ferric citrate is a constituent. It is true that the new compound is more soluble (in water) than ferric citrate alone and that pharmaceutically this gives it an advantage over the less soluble salt, but the definition is surely faulty—still more so in the case of *ferri et ammonii citras*, where the term "iron citrate" is used instead of ferric citrate. Is not iron and quinine citrate in itself a chemical individual, which is converted into a more soluble group by the further combination with ammonium citrate?

Ferri Phosphas. The comments on *Ferri et Ammonii Citras* apply equally well here.

Zingiber. It would be advisable to refer to the pages in the Pharmacopoeia where the special method for determining non-volatile extracts are given.

Tinctura Zingiberis. The following criticisms have been received: The requirements for tincture of ginger are open to the following criticisms: First, contrary to pharmacopoeial usage in case of fluid preparations, the assay is based on a weighed instead of a measured quantity of the tincture. Ten mils, rather than 10 Gm. of the tincture should be taken and the weight of the residue should not exceed 0.165 Gm. (corresponding closely enough with 2 percent). Second, a minimum requirement as to extractive is at least as important as a maximum, for reasons quite obvious. Third, the expression "when treated with 20 mils of cold distilled water" is too vague. The directions should be to "stir the residue with a glass rod during five minutes with 20 mils (or 16 mils as the case might be) of cold distilled water. Decant the water into an evaporating dish and rinse the residue with two mils of distilled water without further stirring. Evaporate to dryness and dry to constant weight at 100° C. or, perhaps better, dry the residue once more and determine the loss." Twenty percent, is suggested as a more reasonable allowance than fifteen in any case. Perhaps after all a requirement that 90 percent of the alcoholic extract should be soluble in ether would probably be more to the point than the requirement as to water solubility.

CAUTIONS AGAINST INJURIOUS EFFECTS OF PHARMACPOEIAL ARTICLES.

Dr. A. B. Lyons submits the following comments: The Pharmacopoeia deals with many poisonous and corrosive substances. Is it in place to point out the dangerous properties of drugs? It seems only right that a book like this should keep before the minds of those who use it the distinction between active poisons and drugs of little potency. The former should surely be kept by themselves under lock and key and this should be specifically required in each instance. Such a practice is recommended in a number of the pharmacopoeias of other countries and should be universal. Our pharmacopoeia avoids mention of the word "poison." It does not even indicate the maximum permissible dose of such a potent agent as strychnine, an omission not less than criminal.

It does now and then, however, print in italics a cautionary sentence interpolated usually in the descriptive paragraph. Under Phosphorus, for example, it is stated that the drug "*has a distinctive and disagreeable odor and taste but should not be tasted except in very dilute solution.*" Italics are those of the text. (Imagine a greenhorn taking a bite of phosphorus to find out how it tastes!) Mention is made of the spontaneous ignition of phosphorus on long exposure to the air and instructions are given to preserve the drug under water in strong well-closed containers in a secure and moderately cool place, but the words are not italicized or given prominence in any way. One would look for some such expressions standing out conspicuously on the page as "dangerously poisonous" or "exceedingly poisonous and extremely inflammable, liable to spontaneous ignition if not kept under water, producing burns exceedingly painful and difficult to heal." We find under Sodium Arsenate, "great caution must be used in tasting it and then only in very dilute solution." (Will someone please parse that sentence?) There is, however, no word of caution under Arsenic Trioxide or even under Solution of Potassium Arsenite.

It is said of Phenol (not italicized) that when undiluted it cauterizes the skin and mucous membrane, language which fails to convey an adequate warning against the deadly effects of this insidious poison.

There are cautions against carelessness in handling calcium hypophosphite and other hypophosphites and so with potassium chlorate where italics are used, but nothing is said of the reaction with strong mineral acids; potassium permanganate "when in solution or in the dry condition must not be brought into contact with organic or other readily oxidizable substances." The idea seems to be merely that the permanganate would be decomposed, with no suggestion of anything like an explosion.

The scope of my criticism is that cautionary expressions are employed in rather a haphazard way. They should be reduced to a system. My idea is to have a definite place under each title for a statement regarding the poisonous character of the drug (if poisonous) characterizing it as: "An exceedingly potent poison," "an active poison," or "a poison," and in each case, preferably inserting a descriptive adjective as "narcotic," "irritant," "corrosive," etc.

The introductory notices should define the uses of the terms "potent" and "active." Similarly, I would, when necessary, introduce a cautionary note with regard to any special care required in handling the article. This naturally would come in connection with the directions "in well-closed containers," etc.

L. D. HAVENHILL, *Chairman.*

EDITORIAL NOTES

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HEARING ON THE EDMONDS BILL.

We have been advised by Congressman George W. Edmonds that a hearing would be had on the Edmonds Bill next Tuesday, March 19th, at 10.30 A.M. It is to be hoped that the result of this hearing will prove entirely satisfactory, although it must be admitted that from certain sources there is opposition, which possibly may be overcome, or not of sufficient strength to impede action on this much-needed measure.

FAIRCHILD SCHOLARSHIP EXAMINATION TO BE HELD JUNE 25, 1918.

THE AWARD THIS YEAR TO BE MADE TO A GRADUATE PHARMACIST.

The Fairchild Scholarship Committee has named June 25, 1918, as the date for holding the Fairchild Scholarship Examinations. The award this year is to be made to a graduate pharmacist. It is the desire to determine how the award of the Fairchild Scholarship can serve to the greatest advantage of pharmacy and when this has been determined the Scholarship will be awarded each year on that basis. Schools of pharmacy are asked to make the announcement in the class-rooms and through other means of publicity. The Scholarship is to be awarded to a student of one of the Conference schools.

RECONSTRUCTION PROBLEMS.

A DRUG TRADE COUNCIL.

It is very evident that the thought of federation of various drug industries is a topic of discussion not only in this country but also in Great Britain. Reference has heretofore been made editorially relative to the address of President C. A. Hill, of the British Pharmaceutical Conference, in which he outlines a plan of federation and this subject is discussed in the *Chemist and Druggist* for February 2, 1918, on pages 43 and 44, and is quoted in full:

"There exists at the present time no one body which can speak with authority for the whole of the (British) drug trade. There are

times, however, when it is desirable that some representative body should be able to place the views of the drug trade as a whole before Government Departments or when such a body should be available to be consulted by the Government when any step in legislation affecting the drug trade is being taken. The Pharmaceutical Society of Great Britain and the Pharmaceutical Society of Ireland may be taken to represent retail chemists; the Drug Club, wholesale druggists; the Proprietary Articles Trade Association, a section of the makers of proprietary articles; the Pharmaceutical Committees (imperfectly federated in the Local Associations Executive) and the General Council of Panel Chemists (Scotland), the interests of panel chemists; the British Pharmaceutical Conference, the scientific side of the drug trade; the Society of Chemist-Opticians and Chemists' Dental Society, those sections of the trade interested in optics and dental work; the Public Pharmacists' and Dispensers' Association, those dispensing in public institutions; the Chemists' Assistants' Association, the interests of assistants; and over 200 Associations, some of which are federated, local interests. No one of these bodies can, however, give an authoritative opinion on a matter affecting the whole trade.

There have been occasions when such an opinion was required, and there will be many in the near future. As an example may be quoted the difficulties that arose in regard to the proposals for the abatement of duty on medical spirits where the medical men's and dispensers' views only were placed before Parliament with the consequence that the effect had to be modified afterwards by inter-Departmental conferences.

Mr. C. A. Hill, the President of the British Pharmaceutical Conference, in his address at the July meeting last year emphasized the need of what he designated a Public Policy Committee which could coördinate, and amalgamate the views of the craft as a whole. It will be remembered also that in what is known as the Whitley Report of the Sub-

Committee on the relations between employers and employed the formation was urged of Joint Standing Industrial Councils representing each trade. Among the questions which it is proposed that these Councils should undertake are those of technical education and training, industrial research, and the consideration of legislation affecting the industry. There has recently been instituted an Industrial Reconstruction Council for the purpose of assisting trades to form the representative bodies referred to, so that it may be taken that the Government is in earnest in this matter. We know that the need has already been felt for a representative body which can be called in for consultation. We hazard the opinion also that the absence of such a Council in the past is perhaps one of the reasons why the Government appears constantly to disregard the views of any one of the Societies representing sections of the drug trade. The difficulty arises at once that the Pharmaceutical Society, which has been provided with a handsome income by the State, takes a narrow view of its responsibilities and is extremely jealous of any other body which may appear to encroach on its preserves. But for these characteristics the matter would have been easy of accomplishment. As it is, it is not unlikely that the Ministry of Reconstruction will require to take in hand the organization of the drug trade. It would be much better, however, if the initiative came from within. The starting point is the formation of a real Federation of Local Associations and of Pharmaceutical Committees. Some parts of the country are already federated areas of Local Associations and a reconstituted so-called Local Associations Executive Committee could be made really to represent the Pharmaceutical Committees from which it draws the money which pays the Committee's expenses. These bodies and the Pharmaceutical Societies would appoint members representing retail chemists to the Drug-trade Council and the wholesale druggists represented in the Drug Club and the Association of Wholesale Druggists could arrange delegates to represent their section. The Whitney Report to which we have referred is largely concerned about the relations between employers and employed, and for this reason the various Chemists' Assistants' Associations would need federating and representing on the Trade Council.

We understand that the Industrial Reconstruction Council is willing to assist in bring-

ing together the different elements of a trade and to arrange a meeting. There will in the near future be many problems for the Trade Councils to solve, and those trades will suffer which are not in a position to represent their views to the Government. It is necessary first to consider what bodies should be represented on the Council and the manner of the election of delegates.

We have not attempted to give a complete list of representative Societies and Associations, but the test in this case is that the Association represents definite interests of persons connected with the drug trade. Looking still further forward in this matter of State recognition, to the formation of a representative Upper House in the Parliamentary system of this country, it is probable that the drug trade would be in a position through its Council to claim a seat there, and thus ensure that the views of the drug trade would be heard in legislative proposals—a far better idea than spending money in the attempt to obtain the election to the House of Commons of representatives of sectional interests.

PROSPECTIVE PHARMACY STUDENTS SHOULD NOT UNNECESSARILY NEGLECT THEIR OPPORTUNITIES AT SCHOOL.

Dr. Claxton, United States Commissioner of Education, has said that "no student should leave college now and none should leave for war service but every man should remain until definitely called. When the Government wants him it will call him."

The leading reason for this statement is that according to the views of Dr. Claxton the war will be a long one. Four whole classes of doctors have simply dropped out of this generation in European countries because of their enlistment. That which applies to medicine is also applicable in a degree to pharmacy. While, of course, there is no intention to keep any one from doing his duty as a citizen, there are doubtless many who enlist in advance of the call and are at present students in colleges of pharmacy. What applies to the latter in a degree also obtains with those who contemplate studying pharmacy. The schools should be kept filled as far as possible and to that end the efforts of the schools to persuade young women to enter pharmacy is timely.

Unfortunately, no provision has been made for exempting pharmacists as has been provided for medical and dental students.

A NATIONAL DUTY.

The Treasury of the United States has a great deal of money to raise and it cannot be raised by bankers alone, says Secretary McAdoo. The banks of this country can not alone sustain America's needs in this war and extend to our allies the essential aid which they must have to continue the war.

The rich of this country can not do it alone; the men of this country can not do it alone; the women of this country can not do it alone; but all of us, the people of the United States, disregarding partisanship, forgetting selfish interests, thinking only of the supremacy of right and determined to vindicate the majesty of American ideals and secure the safety of America and civilization can do the great and splendid work which God has called upon us to do.

THE SUPPLY OF SUGAR.

In reply to many inquiries that are being received regarding the sugar supplies for manufacturers of essential foods product, and appreciating, as we do, the necessity of both production and preservation of food supplies, as well as reflecting the policy of the Food Administration as bearing upon collateral industries such as manufacturers of cans and fruit jars, etc., and buyers of same, all manufacturers of essential food products are advised that they will be able to obtain their full necessary requirements of sugar for manufacturing purposes during the coming season.

This applies particularly to the packers of fruit, condensed milk, and such vegetables for the preservation of which sugar may be necessary, as well as to the housewives for usage in preserving purposes.

As soon as the car shortage is relieved, supplies of sugar will be available for the necessary preservation purposes. Shipments from Cuba are steadily increasing.

Dr. H. M. Whelpley has completed his thirtieth year as editor of *Meyer Brothers*

Druggist, and the January number of that publication commemorates the event by a large issue in which printers art has been advantageously displayed. There are a number of interesting and historical articles, devoted to the growth of St. Louis as a drug and chemical market.

Mrs. Alonzo B. Stevens, wife of the dean of the University of Michigan College of Pharmacy, died February 6th, at Loma Linda, Cal. Mrs. Stevens had been sick for some time. During prior years Mrs. Stevens accompanied her husband to the annual conventions of the American Pharmaceutical Association.

Henry S. Wellcome, of Burroughs, Wellcome & Co., and member of the American Pharmaceutical Association since 1875, presented the British War Office a completely equipped motor bacteriology laboratory.

C. F. Ramsay, a frequent contributor to the Scientific Section, A. Ph. A., is now consulting chemist for Brewer & Co., of Worcester, Mass. For the past eight years Mr. Ramsay was engaged with Parke, Davis & Co., of Detroit.

Frederick Remington, nephew of Prof. Jos. P. Remington, deceased, a wireless operator on one of the American destroyers, has been singled out by the War Department for special commendation, for his conspicuous bravery in a recent engagement with a German submarine. The commendation assigns "efficiency, devotion to duty and gallantry in action in accord with the best tradition of the service."

Frank L. McCartney, president of the New York Branch of the American Pharmaceutical Association, has been appointed Captain in the U. S. Sanitary Corps and is now stationed in the Medical Supply Depot of New York. The Albodon Company, with which Mr. McCartney is associated, has given him leave of absence during the duration of the war.

OBITUARY.

ALFRED BIRCH HUESTED.

Dr. Alfred B. Husted, professor of materia medica and botany in the Albany College of Pharmacy from 1883 until last November, died at his home in Delmar, February 23rd. The deceased was born in Clifton Park, N. Y., May 15, 1840. At an early age he came to Albany where he made his home until 1910, when he moved to Delmar.

His early education was received in the public schools of Albany and the Albany Boys' Academy. When sixteen years of age he entered the drug business of Dexter & Nelliger, remaining with this firm until 1859 when he began the study of medicine. In 1862 he volunteered for United States Service as hospital steward. During the winter of 1863-1864, he was given a short leave of ab-

sence, when he returned to Albany and passed his medical college and state board examinations and was thereafter commissioned a first lieutenant and assistant surgeon in the 21st New York Cavalry. After the war he returned to Albany, where he opened a drug store at Hudson Avenue and Eagle Street. In 1886 he established the firm of A. B. Husted & Co., from which firm he retired several years ago.

Dr. Husted was a member of the first State Board of Pharmacy of New York and was president for sixteen consecutive years. Dr. Husted was a member of the Masonic bodies and retained considerable interest in the G. A. R., of which he was a member. Even at his advanced age he was active and always of a jovial disposition. He was remarkably well preserved both in mind and body and thoroughly in love with his work. Mrs. Husted survives the deceased and also three sons and three grandsons.

Dr. Husted was president of the New York Pharmaceutical Association from 1880 to 1884 and joined the American Pharmaceutical Association in 1879. He and Mrs. Husted have been quite regular attendants at the annual conventions of the Association.

E. G. E.

ABSTRACT OF A TRIBUTE BY PROF. G. V. DILLEN-
BACK ADOPTED BY ALBANY COLLEGE OF
PHARMACY

Alfred Birch Husted, M. D., Ph. G., Secretary and Professor of Botany and Materia Medica of the Albany College of Pharmacy, passed away February 23, 1918. The faculty and college have suffered an irreparable loss. Mature in wisdom, gentle in manner, firm but not aggressive, and daily sacrificing his own opportunities for the happiness and welfare of others, his death leaves a void not easily filled in the college, in the world of pharmacy and in society. He had few equals as a teacher. His training had peculiarly fitted him for the work that was to round out his life. * * * *

He was the friend of everybody and beloved by all and his memory will ever remain fixed in the minds of his associates and the hundreds of alumni who have finished under his instruction. It was not alone his teaching ability but his genial manner and even disposition which endeared him to all, since his presence created an atmosphere of cheer and happiness.

It was ordered that this memorial be entered in full upon the minutes, and that a copy of the same be transmitted to the family of the

deceased with an expression of heartfelt condolence on the part of the members of the faculty and that it be published in one of the newspapers of the city.

WILLIS G. TUCKER,

Dean.

IN MEMORY OF JOSEPH P. REMINGTON.

(Continued.)

FRANK CAIN.

I have always found Professor Jos. P. Remington a loyal friend for democracy in the profession of pharmacy. In the fight for educational freedom of all druggists, no better faith could be exemplified in the brotherhood of man, than the great spirit of fraternalism of Prof. Remington.

He had an abiding faith in education and the ultimate victory which education would bring for the uplift of pharmacy to a level equal to that of any other profession. All his cherished hopes will yet be realized—for the life-work of Prof. Remington will grow to a full materialization of all that is good for American pharmacy.

In memory of Prof. Remington it may be said: He was true to work and true to men: two characteristics which made him possessed of a noble fidelity. His superior knowledge, his work, his moral courage combined with simplicity, gave him gentlemanly dignity. He is highest who stoops to lift up the right above the wrong; therefore, he was our leader. Friends from every walk of life will miss Professor Remington, but pharmacists suffer a severe loss.

WILLIAM B. DAY.

When the history of American Pharmacy is written, Joseph Price Remington will, by common consent, be accorded the highest position among the pharmacists of his time. Thoroughly versed in the practice of his profession, he was at once a teacher of rare ability and a peerless leader of men. His winning personality gained for him a legion of friends to whom his life will be an inspiration and his memory a benediction. It may well be said of him as was said of the poet: "None knew thee but to love thee; none named thee but to praise."

JOHN C. WEYER.

Charles A. Apmeyer, Secretary of the Cincinnati Branch, A. Ph. A., reports the death of John C. Weyer, well-known Cincinnati pharmacist at the age of 79 years. Mr. Weyer died January 28th, and Mr. Apmeyer speaks of

him as a sturdy, true friend, a gentleman of high attainments, a firm advocate of better education for pharmacists, always striving by his individual efforts to place his much loved profession, pharmacy, upon a higher and more scientific plane. Pharmacy deplors the loss of one of her loyal sons.

He was a director of the Cincinnati College of Pharmacy and served as president of the Ohio Board of Pharmacy. He conceived the idea of druggists' fire insurance and twenty-eight years ago organized the Retail Druggists' Mutual Fire Insurance Company, of which he was manager.

SOCIETIES AND COLLEGES.

AMERICAN DRUG MANUFACTURERS' ASSOCIATION.

SEVENTH ANNUAL MEETING.

As president of the American Conference of Pharmaceutical Faculties, Professor Kraemer personally acted as the delegate and delivered a message of great importance for the development of pharmacy at the present time. The Association believes that it will strengthen the work of the university schools as it outlines a program for the future. During recent years there has been considerable pressure to introduce into the curriculum of the college courses a vast amount of ordinary commercial teaching. On the other hand, there is a strong tendency on the part of very many students attending the universities to extend their time until they become proficient in original research. The only deterrent to these advanced students has been the question as to whether the manufacturers would avail themselves of the abilities of these especially trained men. The expression of very many of the American Drug Manufacturers is that they are in need of such men and that they would provide every facility at their disposal for the development of original research and that they would amply reimburse these investigators in their laboratories for any discoveries of merit which they might make.

In concluding Dr. Kraemer said:

"It does not require much thought as we consider the permanency of institutions to come to the conclusion that (1) mankind will always require medicines; (2) that drug manufacturers will supply the remedies; and (3) the universities must train the experts who are the back-bone of our pharmaceutical industries. It is self-evident, therefore, that the men who are teaching the youths of our country, and are to take the places of your chemists and investigators, and assist you in continuing your establishments, ought to be practically conversant with the direction that the manufacturing industry in which you are engaged is developing. I am grate-

ful to you for the encouragement I have received and for the message I can deliver to my colleagues of the American Conference of Pharmaceutical Faculties. The universities will not and must not fail you at this critical period in the world's history when mankind is looking to the properly trained men of our country for the means of prolonging and preserving life.

SOME OF THE RESOLUTIONS ADOPTED AT THE AMERICAN DRUG MANUFACTURERS' ASSOCIATION.

PATENT LEGISLATION.

Resolved, That the American Drug Manufacturers' Association hereby reaffirms its opposition to any patent legislation discriminating against medical, chemical and pharmaceutical discoveries.

POWERS OF DELEGATES TO N. D. T. C.

Resolved, That it is the sense of this Association that whenever all the delegates to the National Drug Trade Conference are unanimous upon a question of legislation before the conference for decision and action, that our delegates be empowered to act and vote according to their best judgment on that question.

REPORT ON PROGRESS OF CHEMISTRY, PHARMACY AND BIOLOGY.

Resolved, That realizing and appreciating that an association of the size and importance of this Association should, as part of its annual work, present a concise, interesting résumé of the progress that has been made in the scientific and industrial branches of chemistry and pharmacy and in consequence of a recommendation of our Committee on Standards and Deterioration, your Executive Committee recommend the appointment by the President of a reporter upon the progress of chemistry and pharmacy and biology, who shall present at the next annual meeting a concise interesting account of what has transpired in the past year.

UNAVAILABLE DRUG SUPPLIES.

WHEREAS, It has been found that certain drugs and chemicals of the U. S. P., such as, for example, scammony root and resin, have not been available for some time past for manufacturers and the drug trade, and

WHEREAS, Certain other drugs and chemicals, as, for example, Mexican scammony root and resin, can be used effectively and are generally admitted to be as valuable and effective as those not available; and

WHEREAS, Government war orders for medicines are being delayed because of the absence of these official drugs from commerce now; therefore be it

Resolved, That this Association urgently request the U. S. P. Revision Committee make official these available and at present unofficial drugs and chemicals, such as those above referred to, at the earliest possible moment.

LAWS APPLYING TO PHARMACY SHOULD BE ADMINISTERED BY PHARMACISTS.

Resolved, That medicine and pharmacy are sister sciences, each having its proper and peculiar function to perform in the conservation of health and life; that these functions, while coöperative, are independent; that it is the function of medicine to diagnose and prescribe and that pharmacy cannot respect the views of particular factions in the medical profession without invading this function by denying to others the means of treating the sick by those methods and medicines they prefer. The American Drug Manufacturers' Association therefore deprecates any political activity on the part of physicians or pharmacists seeking the placement of men of particular views in official positions or connections for factional purposes as unfair and debasing to both medicine and pharmacy.

The Association is therefore in hearty sympathy with the opinion expressed by Prof. James H. Beal that there is no better reason why laws applying to druggists should be interpreted by physicians than that laws applying to physicians should be interpreted by druggists; and be it further

Resolved, That it is the opinion of this Association that laws applying to pharmacy should be administered by men trained in pharmacy.

DESIRABILITY OF FEDERATION OF DRUG INDUSTRIES.

It is hereby *Resolved* by the American Drug Manufacturers' Association that it approves

the desirability and wisdom of organizing and federating pharmacy and the drug interests of this country as conducive to the best interests of pharmacy and all said drug interests; and it is further

Resolved, That this Association appoint three delegates, when invited to do so, to attend a conference of all the national drug associations when this may be called and report back to this Association the results and conclusions of said federation conference for subsequent action by this Association.

SHERMAN ACT SHOULD BE REPEALED.

WHEREAS, the Sherman Act as construed by the courts is so far reaching as to prevent harmless coöperation of kindred industries in the prosecution of the great war in which we are now engaged; and

WHEREAS, The Clayton Act and the Act creating the Federal Trade Commission effectually control the evils reached by the Sherman Act; and

WHEREAS, Said Acts are enforced by the Federal Trade Commission clothed with powers which enable it to determine promptly and in advance whether any proposed combination for coöperation is in under restraint of trade or not; therefore be it

Resolved, That it is the sense of the American Drug Manufacturers' Association that the Sherman Act should be repealed.

REVISION OF PRICE LIST NOMENCLATURE.

Resolved, That this Association heard with interest the suggestion by the Committee on Standards and Deterioration that a revision of the nomenclature of our price lists and labels would be desirable and advantageous to the physician, manufacturer, jobber, retailer, and patient and recommends that the question be referred to the incoming Executive Committee for its careful consideration and action.

ANTI-NARCOTIC LEGISLATION.

Be it Resolved that the Association reiterate its position that the Harrison Anti-Narcotic Law has been remarkably efficient in reducing the illegitimate use of habit-forming drugs and only requires amendments restoring the possession clause in Constitutional form and making certain changes in the Exemption Section, notably, one removing the exemption on Paregoric; and be it further

Resolved, That the resolutions of the Joint Conference held last April at the suggestion

of this Association be endorsed in the form which they took when revised by the National Drug Trade Conference.

ENDORSE WAR SAVING STAMPS.

Resolved, That this Association recommends to its members the active support of the United States War Saving Stamp Movement in the belief that this means of contributing to the support of the War makes possible the utilization of both small and large savings and encourages thrift among small wage earners.

AFFILIATION WITH METRIC ASSOCIATION CONTINUED.

Resolved, That the Association continue the affiliation with the American Metric Association; and be it further

Resolved, That it is the sense of this organization that the adoption of the metric system must come not by arbitrary legislation, but by a gradual adjustment as the people become educated to it and as equipment and materials based on present standard need to be replaced; and be it further

Resolved, When the size of label permits, we recommend to our members that the metric equivalent be stated thereon.

WAR SERVICE COMMITTEE.

WHEREAS, It became necessary during the past year for your Executive Committee to name a War Service Committee to represent the manufacturers of pharmaceuticals and medicinal chemicals, and be the means of touch of the Government with said manufacturers during the war; and

WHEREAS, It appeared to your Executive Committee that each branch of the drug industry should be represented by its own war service committee; and

WHEREAS, The Committee thus named has since been officially recognized by the War Service Executive Committee of the U. S. Chamber of Commerce; therefore be it hereby

Resolved, By the American Drug Manufacturers' Association that such actions of the Executive Committee be the same and are hereby endorsed by this Association with the understanding that the size of this Committee may be enlarged by the incoming President of this Association.

AFFILIATION WITH N. D. T. C. AND C. C. OF U. S. Continued.

Resolved, That the Association continue its affiliation with the National Drug Trade Conference and that the proper officers be and are

hereby instructed to pay its assessment of \$50.00.

Resolved, That the Association continue its affiliation with the Chamber of Commerce of the United States of America.

PHILADELPHIA COLLEGE OF PHARMACY.

Prof. Charles Herbert LaWall, heretofore associate professor of Pharmacy, has been elected dean of the Faculty of the College, to succeed the late Prof. Joseph P. Remington. Dean LaWall has been intimately associated with the college in a teaching capacity for nearly eighteen years. He has also been nominated for the full professorship of the Course in Theory and Practice of Pharmacy, and Prof. E. Fullerton Cook for the full directorship of the Pharmaceutical Laboratories.

Prof. Julius W. Sturmer, at the same time, was elected dean of the Post-Graduate and Special Courses, which include the bacteriological and microscopical departments. Prof. Sturmer, until the recent amalgamation of the two colleges, was dean of the Department of Pharmacy of the Medico-Chirurgical College.

Prof. Frank X. Moerk has been elected director of the Technical Chemical Courses. Professors LaWall, Sturmer and Moerk constitute the new executive officers of the faculty. At the invitation of the board of trustees of the College, the new executive officers will hereafter be present at all meetings of the board and will take active part in its deliberations.

Each month takes its toll of students from the class roll. At the last report the number of students and last year's graduates in military or naval service has reached over the two hundred mark.

In line with the nation's food conservation program, the customary annual banquets of the class organizations and fraternities have been temporarily postponed.

President Howard B. French is serving in an official capacity as chairman of one of the committees dealing with the housing problems near the Government's new shipbuilding plants in the League Island district.

UNIVERSITY OF KANSAS, SCHOOL OF PHARMACY.

Dean Sayre of the Kansas School of Pharmacy, advises that the Chamber of Commerce of Lawrence has adopted a resolution favoring

the creation of a pharmaceutical corps in the Army. The resolution follows:

Resolved, That the Chamber of Commerce of Lawrence, Kansas, interested in the promotion of all projects for the advancement of national as well as local welfare, join the pharmacists of Lawrence and the faculty of the School of Pharmacy of the University of Kansas, in urging the passage of the Edmonds Bill H. R. 5531, convinced that the establishment of a pharmaceutical corps in the U. S. A. will greatly increase the efficiency of the medical service of the army—whereby dispensing of medicines will be in the hands of trained men skilled in this coordinate branch of medicine. The establishment of this proposed corps will measurably relieve the already overburdened physicians and surgeons

so that they may devote their special attention and care to the treatment of our soldiers in the various hospitals.

TEMPLE UNIVERSITY, DEPARTMENT OF PHARMACY.

In the November issue, 1917, on page 987, school 53, item 3, an error was made. This should have been 45 instead of 11. In justice to Secretary Jordan, it should be said that the error occurred in the Journal Office, the ditto mark of a pencil copy being taken for the figure 11, whereas it should have referred to the prior statement "that this report was made before commencement and hence the number of graduates could not be given." Since this time Dean John R. Minehart has given us the number of graduates which, as indicated, was 45.

THE PHARMACIST AND THE LAW.

FEDERAL EXPLOSIVES LICENSES.

An Act of Congress (*Public Document No. 68, Sixty-fifth Congress*) to prohibit the manufacture, distribution, storage, use and possession in time of war of explosives, and the ingredients thereof, provides that a license from the Bureau of Mines is necessary for every person, firm or corporation, to purchase, possess, sell or use, any explosive or the ingredients thereof.

1. It is necessary for pharmacists and druggists to make application for such a license.

2. It is necessary for institutions of learning, for instance, colleges, high schools, etc., to make application for said license.

A chemist conducting a commercial laboratory must make application for the license, if any of the enumerated substances are on hand in quantities of one ounce or over.

Any violation of this Act is punishable by a fine of not more than \$5,000 or by imprisonment of not more than one year, or both fine and imprisonment.

The Bureau of Mines has published the attached list of articles requiring licenses under this Act.

The purchase, possession, sale or use of any one of the ingredients herewith listed below in amounts of *one ounce or over* requires a Federal Explosive License.

Bichromates: ammonium, potassium, sodium; chlorates: barium, potassium, sodium, strontium; chromates: ammonium, barium, calcium, chrome green, chrome yellow, lead, potassium, sodium; nitrates: ammonium, barium, copper, ferric, lead, magnesium, nickel,

potassium, silver, strontium; nitric acid: aqua fortis, fuming, nitric acids of all grades and strengths, mixed acids; perchlorates: perchloric acid, potassium; perborates: magnesium, sodium, zinc; permanganates: calcium potassium, sodium; peroxides: barium, calcium, magnesium, oxon (cubes and cartridges), sodium, strontium, zinc; phosphorus.

FLOOR TAX ON ALCOHOL HELD TO HAVE BEEN ILLEGALLY ASSESSED.

The floor tax on alcohol to be used for non-beverage manufacturing purposes has been declared illegal.

In a comprehensive opinion rendered by Attorney General Gregory, the assessments, made by collectors, on alcohol in the possession of manufacturers of drugs, medicine, perfumery, toilet articles, etc., at the time the war revenue act of October 3, 1917, became operative, were illegally assessed. The tax amounted to \$1.10 per proof gallon.

RULINGS UNDER WAR REVENUE LAW.

The following additional regulations applying to medicinal and toilet articles were furnished to the N. W. D. A. by B. C. Keith, Deputy Commissioner, of Internal Revenue under date of January 25, 1918.

Where toilet preparations or proprietary preparations of a medicinal character are prepared by a retail dealer on his own premises and sold exclusively to his own customers, such a dealer manufacturing his own products is regarded under the Act as a manufacturer and will be required to pay the tax.

Where a medicinal preparation is "held out

or recommended" as a remedy, even though such recommendation is intended for physicians only, it is a holding out to the public through the physician and is subject to the tax imposed.

Where medicinal preparations are sold under labels which do not indicate that the formula is published, they will be construed to be prepared under secret formula, unless affidavit or other evidence is submitted to show that the formula is not a secret.

Preparations made in accordance with formulas, contained in the United States Pharmacopoeia and National Formulary by pharmaceutical manufacturers and druggists having no special proprietary right to such formulas, and bearing printed labels giving direction as to use, when not held out or recommended by the manufacturers, vendors, or proprietors as proprietary preparations, or as remedies, or specifics for any disease or affection, are not taxable under paragraph (h), Section 600.

If there is not any claim or indication that a medicinal preparation is proprietary and no disease or affection is named for which it is claimed that the medicine is a remedy, the tax does not attach.

Where a medicinal preparation is advertised under the name or initials of the manufacturer, or if any name in the possessive case is used on the label or on literature describing the preparation, the tax is imposed.

A retail dealer, manufacturing a patent medicine by a private formula, is subject to the "manufacturer's" tax even though he sells such a product only in his retail store.

SUGGESTIONS FOR THE CONSERVATION OF SUGAR USED IN THE MANUFACTURE OF SODA FOUNTAIN BEVERAGES.

The letter following was received by Secretary F. E. Holliday, of the N. W. D. A., from W. T. Harper, Ottumwa, Ia. Such procedure, as recommended, would require the consent of Federal and State authorities. Under the circumstances regulations authorizing the manufacture, as a conservation measure, might perhaps be provided, but until then, in our opinion, would be inadvisable. The letter reads:

"The writer's connection with the Food Administration has brought home for more serious thought some things in connection

with our business in which a great many of our members will be interested.

"We understand there is now being taken data from the owners of soda fountains as to the quantity and kind of materials used in serving soft drinks. We were already aroused to the fact that the campaign for decreased consumption is being waged all over the country. A lot of sugar is used in soda fountain drinks and soft drinks of all kinds. A lot of sugar is necessary, but there is a lot of it that is wasted.

"The question in our mind is, will this be permitted and will soda fountains and soft drinks be considered as non-essentials and eliminated from business?

"The elimination of any business as a non-essential is a serious problem and the Administration will probably hesitate before doing this. The loyal support, however, of any such business to the Administration will help that business and help the Administration wonderfully.

"In giving this matter consideration we have felt that the owners of soda fountains should eliminate sugar syrup either in the form of rock candy syrup or syrup by percolation from sugar as much as possible. This can be done by using a certain amount of glucose. The quantity of syrup used in any drink has been too much at most places for the profit of the retailer and for the good of the consumers, but it tickles their taste to have a sweetened drink and hence it has been abused.

"Now, the same amount of syrup can be given but it can be given in a different form, will not use as much sugar and will not be quite as sweet. This syrup can be made by using two parts of rock candy or sugar syrup, one part of glucose and one part of distilled water. This will eliminate 50 percent of the sugar used, would still give them a sweetened drink and would reduce the cost to the dispenser.

"We have investigated this matter and find that this formula has been used in the past by soda fountain owners who believed in running them for profit, and the service that they have given was satisfactory and they did a good business on this formula. We believe that something of this kind should be worked out and should be bulletined broadcast across the United States so that every jobber of soda fountain supplies can give this information to his customers, thereby cutting down quickly the use of 50 percent of the sugar which has been used for this purpose."

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo.

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESSES SINCE DECEMBER 5, 1917.

ROBERTS, J. G.

From 35 Poplar St., Philadelphia, Pa.

To 1634 N. 62nd St., W. Philadelphia, Pa.

ROSENZWEIG, B.

From 495 8th Ave., Brooklyn, N. Y.

To 381 Gold St., Brooklyn, N. Y.

BOADA, F. P.

From Campanrio No. 70 (bajos), Habana, Cuba.

To 27 entre Ay Pasco, Vedado, Habana, Cuba.

FRY, N. G.

From 401 W. North Ave., Chicago, Ill.

To 421 W. North Ave., Chicago, Ill.

GERSHENFELD, LOUIS.

From 1732 S. Ninth St., Philadelphia, Pa.

To 5807 Haverford Ave., Philadelphia, Pa.

TAYLOR, WM.

From 161 W. 140th St., New York, N. Y.

To 515 W. 157th St., New York, N. Y.

BREWER, J. ED.

From 1705 Cherry St., Philadelphia, Pa.

To 1541 Arch St., Norristown, Pa.

NOVACK, H. J.

From 595 Willoughby, Brooklyn, N. Y.

To 3131 W. Norris St., Philadelphia, Pa.

LIEBERSTEIN, LOUIS.

From 223 S. Euclid Ave., St. Louis, Mo.

To 2235 Euclid Ave., St. Louis, Mo.

KURTZ, I. W.

From 316 Clark Ave., St. Louis, Mo.

To 3rd and Cedar Sts., St. Louis, Mo.

NITARDY, F. W.

From 1105 Broadway, Denver, Colo.

To 66 Orange St., Brooklyn, N. Y.

HUNT, REID.

From 240 Longwood Ave., Boston, Mass.

To Harvard Medical School, Boston, Mass.

RHEA, H. M.

From Somerville, Tenn.

To c/o Revenue Agent, Huntington, W. Va.

WAGENER, L. R.

From Bangor, Mich.

To 203 N. Ingalls Ave., Ann Arbor, Mich.

VIEHOEVER, A.

From Washington, D. C.

To Dept. of Chemistry, Urbana, Ill.

CAHAN, S.

From 864 N. 10th St., Philadelphia, Pa.

To S. W. Cor. 8th and Dickinson Sts., Philadelphia, Pa.

MILLER, ROBERT J.

From 1800 Green St., Philadelphia, Pa.

To 114 S. West St., Carlisle, Pa.

PUBLICATIONS RECEIVED.

Standard for Pituitary Extract, Apparatus for Studying Effect of Drugs, Slide Holder and Protector for Warming Stage, Deterioration of Cannabis.—*The Lilly Scientific Bulletin*, Series I, No. 8.

A Study of Oil of Chenopodium, By W. H. Zeigler, Professor of Pharmacology, Medical College of the State of South Carolina.

The Preparation and Standardization of Ovarian and Placental Extracts, By. W. H. Morley, M.D.—From the Research Laboratory of Parke, Davis & Co., Detroit, Michigan. Also from same source:

The Frequency and Significance of Dysfunc-

tion of the Internal Secretory System in the Feeble-minded, by Carey Pratt McCord, M.D., Detroit, and H. A. Haynes, M.D., Lapeer, Mich., and *The Pineal Gland*, the Pineal Glands Influence upon Growth and Differentiation, with Particular Reference to Its Influence upon Prenatal Development, by Carey Pratt McCord, M.D., Detroit, Michigan.

Missouri Druggist, Bulletin of the Missouri Pharmaceutical Association, Vol. I, No. 6.

The Pennsylvania Pharmacist, Vol. I, No. 1, to be published quarterly. The issue reflects credit on Editor R. P. Fischelis. A timely

editorial is entitled "Who Gets the Credit." We quote a few lines of this message:

"The day on which pharmacy reaches the degree of 'bigness' which will recognize accomplishment by the body pharmaceutic as paramount to accomplishment by any individual organization in that body, will mark the birthday of a new pharmacy—one which will wield a powerful influence among professional bodies. * * * There never was greater need for the pharmaceutical interests to be 'big' than there is right now. We want a pharmaceutical corps in the army. If we

get it there will be plenty of credit to go around. Our national, state and local associations should realize this and work harmoniously, unitedly and everlastingly until the big object is accomplished."

Sun Dial Address.—At the celebration of New Year's Day, 1918, at Girard College, Philadelphia, the Early Eighties Alumni Association presented their Alma Mater with a Sun dial as their Memorial, when this address of Henry Kraemer, Ph.D., president, was read by Joseph M. McCutcheon, vice-president, on the occasion of the presentation.

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, \$4.00; Canada, \$4.35; foreign countries, \$4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, Easton, Pa., or 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

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Contributions: The JOURNAL accepts no responsibility for the opinion of its contributors. Contributions should be type-written and sent to the Editor; use only one side of the sheet for writing, and double-space the lines. Articles are accepted for publication on condition that they are contributed solely to this JOURNAL; and "all papers presented to the Association and its Branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by consent of the Committee on Publication." (By-Laws, Chapter X. Article 11.)

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them, provided the order is received with the returned proof. The prices are also given on this page. Otherwise type is distributed as soon as the JOURNAL is printed.

Advertisements: Communications relating to advertising should be sent to the Editor. Forms close on the first of each month, and copy should be in by the fifteenth of the month preceding date of issue, to receive proof. Date of issue—the fifteenth of the month. Advertising rates sent on request.

Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the JOURNAL. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

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SAMUEL CLEMENTS HENRY

CHICAGO, ILL.

Chairman House of Delegates, American Pharmaceutical Association, 1917-1918



SAMUEL C. HENRY

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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NO. 4

SAMUEL CLEMENTS HENRY.

Samuel C. Henry, chairman of the House of Delegates, American Pharmaceutical Association, is a native of Virginia and, we are informed, a lineal descendant of Patrick Henry. Undoubtedly the subject of this rather incomplete sketch possesses characteristics that were predominant in his antecedant and marked him for lasting fame. While the occasion may not arise which will imprint the memory of Samuel C. Henry on permanent historical records, his activities in organization and legislative matters pertaining to the retail drug business have been eminently successful and helpful, and he will measure up to the greater opportunities which have come to him by his election as Secretary of the National Association of Retail Druggists, of which organization he was president in 1915. His counsel and leadership in shaping national legislation has been and is a valuable asset of that body. He is deliberate in speech, logical in reasoning and measures his statements with assurance of being right.

Mr. Henry was trained as pharmacist in the William S. Thompson pharmacy of Washington, D. C., from where he came to Philadelphia and soon thereafter engaged in the retail drug business on his own account, and later established a second store. He took an active interest in the local retail druggists' association and exhibited high qualities of an efficient organizer, and for a time was president of that association.

His capabilities and comprehension of legislative needs, related to the drug business, were soon recognized, and in such capacity he has labored efficiently for many years in behalf of the local, state and national associations, as member of legislative committees and as chairman.

The approval of his work and his uniform courtesy made him president of the Pennsylvania Pharmaceutical Association, which office he filled with credit to himself and satisfaction to the members. For a number of years he served on the board of trustees of the Philadelphia College of Pharmacy.

In 1909, he joined the American Pharmaceutical Association and, until the time of his leaving Philadelphia, contributed largely to the success of the Local Branch. He did not neglect his affiliation when it became necessary to leave his adopted city, but at once joined enthusiastically with the Chicago members, who welcomed his coming among them. He occupied various official positions in the

Philadelphia Branch and for one year that of presiding officer. The esteem in which he is held was very evident prior to his departure for Chicago and, both the latter body and the Philadelphia Association of Retail Druggists gave public expression thereof in largely attended special meetings in his honor, on which occasions their sincere regard was voiced by speakers at the banquet tables.

Mr. Henry is always found among the workers, and, therefore, aside from his professional duties, he considers that his Church should have his active support and so in this connection he also has been recognized as a faithful member and zealous officer.

Intensely interested in legislative matters, it is not surprising that he should and did take part in political affairs, and was several times honored with the nomination for the Pennsylvania Legislature. Though his campaigns were unsuccessful from one point of view, that of not being elected, his record is clean and his failure in securing the election was largely due to his unwillingness to lend himself to questionable methods and of being the candidate of the minority party in his district.

While Mr. Henry's activities have most largely been concerned with the National Association of Retail Druggists he has not neglected the American Pharmaceutical Association. Last year he served as vice-chairman of the House of Delegates and on several important Association committees; this year, at the Chicago meeting, he will preside over the sessions of the House of Delegates.¹

E. G. E.

CONSERVATION COÖPERATION BETWEEN PHARMACISTS AND PHYSICIANS.

The best reason for the assumption of the possibility and practicability of co-operation for conservation between pharmacists rests upon the fact that the medical profession of our country has outstripped any single body of citizens in its devotion to our country's cause in the present war. Medical practices developed by years of application, lucrative incomes which they yielded, near realization of ambitions for professional advancement fond domestic and social ties, assurance of comfortable futures—all were relinquished promptly and unselfishly by thousands of our medical practitioners when the call came and they placed their abilities and energies unreservedly at the disposal of our Government. To make such acknowledgment of the splendidly patriotic attitude of our medical men, in and out of the service, is directly related to the subject of "conservation of drugs and medicines," and were it pure digression, it would still be entirely pardonable because one would have to be churlish, indeed, to have enjoyed the cordial friendship of many of these manly men and fail to fully and freely commend the fine quality of their citizenship.—*Adapted from a paper by Ambrose Hunsberger on "Practical Drug Conservation," printed in this issue of the JOURNAL.*

¹ Minutes of the House of Delegates, Indianapolis meeting, will be printed in May issue of the JOURNAL.

"THE ESTABLISHMENT OF A PHARMACEUTICAL CORPS"—A TRUMPET CALL TO DUTY!

"And now comes the trumpet call to duty: the fearful, piercing cry of humanity in agony. No longer can we look on and shrug our shoulders and say 'This problem is not ours.' Our own flesh and blood is dedicated to the struggle and will pour out its rich wine of life and youth and of hope."

"Before our eyes millions are giving their all: their last measure of devotion; their last drop of blood. The world lies bleeding before us: a world thus far, that has touched us only as one touches the hem of a garment. But now no longer. Today, at desk, in kitchen and at bedside the call is here and we are facing the mud, the carrion, the terror, the infinite weariness and suffering of the battlefield. Our faces are turned toward those fields of France that are one vast Calvary."—Part of an editorial in the *Ladies Home Journal* for November 1917.

A MERICAN pharmacists desire to enlist in the service for humanity in a capacity wherein they can work most helpfully, but this is impossible under present conditions when there is no pharmaceutical organization in the Army. Without such provision the enlisted pharmacist can not serve efficiently, for his experience counts for little and his knowledge of the science and art of his profession has even less value, and still in civil life pharmacy is regarded as "the right arm of medicine."

The U. S. Government as well as the medical profession accept of the standards for materia medica prepared by pharmacists. In an editorial of a recent issue of the *Pharmaceutical Journal and Pharmacist* (Great Britain) these lines occur: "The United States has been uncommonly fortunate in the possession of a remarkable array of eminent pharmacists who have rendered signal service to the science of pharmacy and to the cause of pharmaceutical education and progress."

Every nation engaged in the War except England and the United States has pharmaceutical corps as part of their Army organization, and England has recently commissioned twenty-one pharmacists—a forward step prompted by the efficient service of the Australasian Pharmaceutical Corps.

That pharmaceutical service is not of a high standard in all of our camps at present is known to pharmacists in the cities near to these camps and therefore the fact need not be further impressed on our readers, most of whom have authentic information thereon from dependable sources. That the service in some of these dispensaries would not be lawful in civil life is also beyond dispute. A sworn statement recites that a dispenser in one of these camps was formerly a bartender, another a cigar salesman and another a bookkeeper. It might be contended that no pharmacist was available and still there are verified statements that there were graduate pharmacists in a camp where inexperienced men dispensed or directed the graduate pharmacist how he should dispense. Such testimony tends to sub-

stantiate the truth of reports relative to dispensing errors of antiseptic tablets of bichloride of mercury for phenacetin and normal salt solution tablets, morphine tablets for calomel tablets, and we have seen tablets of mercuric chloride from one of the important camps that were stocked in tin containers! When the people realize existing conditions they will resent such platitudes as "The needs of the soldiers can be provided for satisfactorily under the present organization." A preceding Surgeon-General openly stated that this work (dispensary) "*was one particular in which the Medical Department is unprepared to fulfill its responsibility to the Army and the nation.*"

We have no desire to render prejudiced judgment; the immensity of the undertaking must be considered together with the fact that there is no provision in our military organization for a pharmaceutical corps. But the health and life of our men deserve as early attention as possible. We all know how promptly the medical men responded to the call of duty and their action commands our highest commendation, but they were overburdened and hence duties had to be assigned to others and in some instances as related. The point is that an organized pharmaceutical service ought to be established, without unnecessary further delay, constituted of men who can take over a great deal of work that must now be done by the medical men and certainly can not be performed by inexperienced hands.

Surgeon-General George J. H. Elyatt, of the British Army has aptly said "that the Medical Department existed for the individual benefit of the soldier, and if they failed in their duty to him they were not faithfully discharging their obligation."

The opinion prevails that Surgeon-General Gorgas does not favor the establishment of a pharmaceutical corps. We know that he is a man of unquestioned sincerity, actuated only by that which, *in his judgment*, he deems best for the Army, an executive of highest ability, fully conscious of the gravity of the situation that confronts us. He has undoubtedly advised with leading physicians and surgeons relative to the necessity of establishing a pharmaceutical corps in the U. S. Army. Whatever their views may be, we are persuaded that the majority of medical men desire the services of an organized efficient pharmaceutical corps.

An axiom of Democracy says: "The whole people is wiser than any group or man in it. Its judgment is safer, surer." The question of the right pharmaceutical service is a broad one, it is not of an individual case or opinion but one to be asked of thousands of physicians, of tens of thousands of parents and sons, "Should the best that is in pharmacy and pharmacists be made available?" "The nation depends upon the proper utilization of every available talent." "It is just as reprehensible to waste talent as material." The people rightfully expect Congress to provide the means and organization and that the Medical Department adopt modern and effective methods for restoring the injured as well as for the conservation of the health and lives of our soldiers. Neither Congress nor the Medical

Department can afford to disappoint them, and we have confidence in their purpose and ability. It is difficult to displace precedent, but the United States can not remain satisfied with our present system when they are made acquainted with the more efficient services rendered by the foreign pharmaceutical corps.

The following question is relevant: "Would the Medical Department of the Army be more or less efficient with an organized corps of trained pharmacists than under the present system?" Other nations have answered the question by an extension of this service, and the Senator from Rhone, Mons. P. Cazenenve testifies to the efficiency of the French Pharmaceutical Corps by saying "That they have contributed eminent service to the country and gained the love and respect of the citizens of France."

Surgeon-General Gorgas recently said, as quoted by the *New York Times* (italics are ours):

"Line officers have had no hesitation in *ignoring* the sanitary recommendations of Medical officers of lower rank. The men of the Medical Corps should get higher rank, *rank commensurate with the importance of the positions they hold.*"

The Surgeon-General should turn his eyes on Pharmacy, a neglected branch of the Army Medical Service to which his remarks apply with equal force.

The Surgeon-General should visualize the possibilities of pharmacy as "the right arm of medicine" and while the services to be rendered are in some respects decidedly different than in civil practice, the relation obtains and there is relative possibility of coöperation. There is absolutely no reason why the breach between the professions should be widened when it is only by close coöperation that both are of the highest service for humanity, and this service is momentous for conserving health and life.

Why rank for pharmacists is necessary for best service to the men in arms need not be discussed at length. The first point is, the life of the Army demands efficient pharmaceutical service for it is an essential of its medical branch; much of the work that burdens this department can be assumed by pharmacists, otherwise the time is not far distant when the supply of medical men will be utterly inadequate for the needs of soldiers and civilians. Rank carries with it authority and respect, without it counsel with physicians and surgeons and other officers is impossible or at least impracticable. Lieut. W. A. Poucher of the British Medical Corps has noted the changed conditions now existing where commissioned pharmaceutical officers have been installed: "Where heretofore there were no consultations with the medical men, there now are to the supreme satisfaction of the latter, and this inspires confidence with the patients which had been absent before." Without rank our pharmacists could not coöperate with those of the foreign armies.

There is another point of importance, qualified pharmacists are men of ability and can secure positions in other departments of the service or qualify as officers.

It is unreasonable to expect that they would not prefer positions of rank or larger pay, hence many have already assumed other duties. This is of serious significance for it has to that extent depleted the ranks of qualified pharmacists, whereas if conditions were different their preference would have been for pharmaceutical service.

Pharmacists have endeavored to impress the importance of a pharmaceutical corps on the Surgeon-General; they are now importuning Congress. The Committee on Military Affairs of the House gave representative pharmacists from nearly every state a respectful hearing on March 19, and the members of the Committee were deeply interested in the presentation. It is not a question of selfish promotion and it is a matter of such evident necessity that some pharmacists are perhaps not as patient as they should be. In the meantime, now, every pharmacist in the country should deem it his duty and privilege to impress the utility of pharmaceutical service on the people so that they will join in the movement, by expressing their honest convictions to their Congressmen and Senators. It is the trumpet call to duty and opportunity of service, for the number of those who are sick and wounded is many, many times larger than those who are killed in action, and the service does not end here for the conservation of health is paramount.

"This problem is ours, our own flesh and blood is dedicated to the struggle." Pharmacy has a mission and pharmacists desire to be of service; they will not have pharmacy discredited, because they know pharmacy in the Army can not be ignored without sacrifice of life and health of our soldiers.

E. G. E.

THE HEARING ON THE EDMONDS BILL.

On March 18, pharmacists from all over the country assembled at the New Southern Hotel, Baltimore, for a discussion of the Edmonds Bill and to plan for submitting arguments before the Committee on Military Affairs of the House, at Washington, Tuesday, March 19, at 10.30 A.M.

The large gathering of representatives in attendance from every section of the country speaks for the deep interest that pharmacists have in the establishment of a Pharmaceutical Corps. The greater number of the state pharmaceutical associations as well as the national organizations connected with the drug trade were represented, and also a majority of the schools of pharmacy holding membership in the American Conference of Pharmaceutical Faculties. There was a free discussion of the Edmonds Bill and also of the arguments in support of a pharmaceutical corps in the U. S. Army. S. L. Hilton, chairman of the A. Ph. A. Committee on the Status of Pharmacists in the Government Service, presided and R. P. Fischelis, secretary of the National Pharmaceutical Service Association was nominated secretary of the meeting.

A committee was appointed to present amendments that would be acceptable for the Edmonds Bill, in case the Committee on Military Affairs would request that changes be made, or if objections were interposed to any of the provisions of this measure. The main change advocated in the draft was to make the ranking officer in the Pharmaceutical Corps a colonel instead of a major, with majors, captains, lieutenants and other officers to correspond to the various branches of the service.

The other modifications related chiefly to phraseology and that various acts provided for in the bill and requiring the approval of the Surgeon-General, should also in addition have the sanction of the Secretary of War.

As speakers at the hearing, Dr. Frederick J. Wulling was named to offer the arguments for the establishment and needs of a pharmaceutical corps in detail. Dr. J. Madison Taylor, of Philadelphia, was selected for voicing the subject from the side of the medical profession. E. G. Eberle was asked to prepare argument showing the need of and the protection afforded by this proposal and also point out some of the unsatisfactory conditions existing at this time in the dispensaries of a number of the camps. Caswell A. Mayo was named to inform the members of the Committee relative to the pharmaceutical corps in foreign armies. To Samuel C. Henry was assigned the duty of an analytical survey of the Edmonds Bill. Prof. Charles E. Caspari was charged with the presentation of the work of pharmacists in compiling standards for the materia medica employed by physicians in their practice. W. L. Crounse was delegated to represent the manufacturers and combat the report that they are not in favor of the establishment of a pharmaceutical corps. The committee for preparing amendments to the Edmonds Bill was named as follows: Joseph W. England, E. C. Brokmeyer, W. L. Crounse, J. A. Koch and R. P. Fischelis.

At Washington the delegates who had met on the previous day in Baltimore were joined by quite a number of others, including a large delegation from New York. Not only was Congressman Edmonds impressed by this large attendance but the Chairman of the Committee on Military Affairs, the Honorable S. Hubert Dent acknowledged the evident coöperative spirit on the part of pharmacists.

The meeting was called to order at the hour set for the hearing and was to have adjourned promptly at twelve o'clock. The interest of the members of the Committee, however, prompted them to freely interrogate the first speaker, Dr. Frederick J. Wulling, so that the larger part of the time assigned for the hearing was taken up by him in presenting his case and in answering questions propounded by members of the Committee.

Dr. Wulling was followed in his remarks by Dr. J. Madison Taylor, who introduced strong and forceful arguments from the physician's standpoint as to why a pharmaceutical corps should be established, stressing the importance of qualified service for this organization.

The time allotted had passed but the Chairman of the Committee as well as the members were so concerned in the subject that they consented that the other speakers briefly state their points, and all of them were permitted at a later day to add to their arguments such statements that it was impossible for them to submit for the want of time.

It was clearly evident that the Committee was impressed and, while there is no certainty as to what their conclusions will be, every one in attendance was highly gratified over the consideration given to the subject and the courtesies which had been extended by the Committee and Congressman Edmonds.

There has been progress, the message should be carried to the people, such help counts for much, and it stands to reason that every citizen who has a son in the service will readily coöperate, if advised relative to the purpose of the Edmonds bill. Do your duty as citizen and pharmacist.

E. G. E.

SCIENTIFIC SECTION

THE MICROANALYSIS OF MALTED MILK.*

BY C. W. BALLARD.

At first thought the application of microanalytical methods to the examination of malted milks seems rather impracticable and the work was undertaken more in the spirit of curiosity than with any real hope of definite results. Chemical methods, even those involving determinations of diastatic power and amino acids content, had failed to yield dependable information excepting as regards fat, protein, ash and moisture. Diastatic figures, even in authentic samples, were widely different. The fat, protein and ash content of a given sample would certainly establish whether whole or skimmed milk had been used in the preparation; but these results do not tell us if the sample is genuine or not. We are dealing with mixtures of varying composition and although limits of variation can be fixed, chemical methods alone will not give us the information we most desire, besides they are complicated and consume much time. A microanalytical determination of a malted milk sample can be fully completed by an experienced worker in less than one hour. Such a report will tell us what kind of milk and malt has been used, and what is more important, whether the sample is a standard processed article or an imitation mixture.

At the time this investigation was started there were no standards for malted milk. Consequently it would have been difficult to prove that several spurious articles sold under this title were misbranded. Prosecution would have involved the question of proper definition of the term "malted milk" and whether the word "malted" was really used in its adjective sense or merely as a trade name. With the issue of Food Inspection Decision 176 (*Service and Regulatory Announcement* 20, July 2, 1917), the proposition becomes less complicated, for malted milk is defined in this decision. Referring to the text of the decision we find the following:

"Malted milk is the product made by combining whole milk with the liquid separated from a mash of ground barley malt and wheat flour, with or without the addition of sodium chloride, sodium bicarbonate and potassium bicarbonate in such a manner as to secure the full enzymic action of the malt extract and by removing water. The resulting product contains not less than seven and one-half percent (7.5%) of butter fat and not more than three and one-half percent (3.5%) of moisture."

It will be apparent from this statement, that the term malted milk, as used at present, is not merely a trade name for the product of a few manufacturers. Products now sold under this title must fulfil certain specifications. I might add that very few of the samples examined would comply with the above requirements. Malted milk is not a *mixture* of various malt products and powdered milk, but is a preparation in which the malt and milk have been changed by process of manufacture so that the resultant differs in chemical constitution as well as microscopical characters, from the substances used in its preparation. The term "processed" will be used here to designate the standard malted milk which fulfils the requirements of the above decision.

* Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1918.

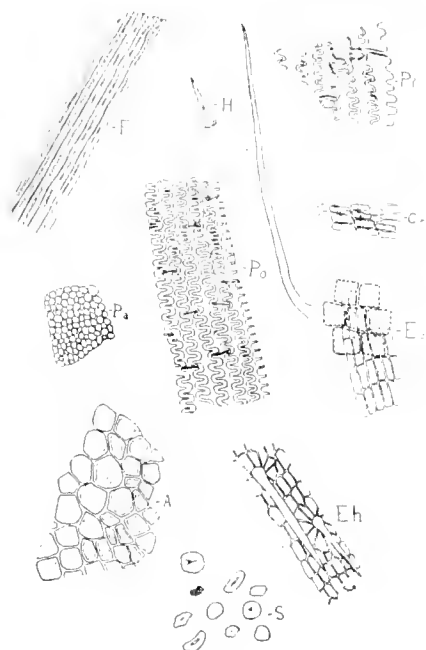


FIG 1

Powdered Malt.

F, Fiber; H, Hairs; Pi, Inner epidermis of palet; Po, Outer epidermis of palet; Pa, Parenchyma; Cr, Cross cells; Ee, Epicarp overlying spermoderm; Eh, Palet tissue with hairs; A, Aleurone cells; S, Starch.



FIG. 2

Dried Malt Extract.

D, Extract or diastase masses, H, Malt hairs, S, Starch, P, Palet tissue of barley.

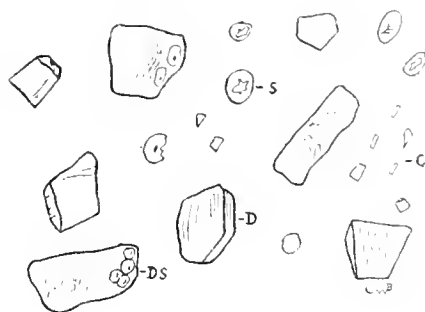


FIG. 3

Diastase.

D, Diastase masses, S, Starch, C, Crystals; DS, Diastase mass with starch.

In the preparation of specimens for examination, temporary mounts are best. Glycerin jelly mounts are very poor as even slight heating alters the appearance of the sample. Glycerin, alcohol and water mixture (1 : 1 : 1) is the best medium if specimens are for immediate use. Permanent slides may be prepared by using glycerin, or better still, petroleum oil as a mounting medium. Oil mounts are necessary in every instance as sugars and water-soluble constituents dissolve and are apt to be overlooked. As a preliminary to the microscopical examination, it is absolutely essential that the analyst be thoroughly familiar with the differences in appearance and structure of the various materials used in the manufacture of malted milk. Milk powders and malts vary widely because of different processes of manufacture. The use of dried malt extracts and various fillers add to the difficulty of the work. The materials found by the writer to enter into the manufacture of malted milks, genuine and otherwise, are powdered skimmed milk, powdered whole milk, powdered malt, dried extract of malt, diastase, bread products, glucose, cane sugar, various starches, gelatin and gums. The microscopical characters of each of these substances will first be described.

SKIMMED MILK POWDER.

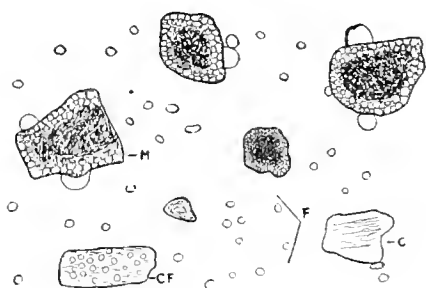
The process used in the preparation of skimmed milk powder will have great influence upon its color and microscopical appearance. The milk may be evaporated to dryness in steam kettles, vacuum pans or by various devices which force the

milk in spray form over heated rollers. The color of powdered milk prepared in an open steam kettle is golden yellow to dark orange depending upon the degree of heat employed in the operation. It is rather difficult to reduce this milk to fine powder. Vacuum pan and spray dried milks are nearly white and are very finely subdivided. Manufacturers prefer a milk dried by this method as it is more readily soluble than an open dried milk. The individual particles of a skimmed milk powder prepared by vacuum or spray process, are for the most part spherical, although irregular masses are also found. Each particle is probably an aggregation of fat globules held together by solidified albuminous material. Some of the masses may be likened in appearance to enormous polynuclear leucocytes, the fat globules corresponding to nuclei. Many of the forms show a central portion of irregular outline almost filling the mass and containing numerous fat globules. A few of the particles are without apparent fat globules but appear to be filled with a granular substance. Other forms, especially those of irregular outline, are crossed by radiating or branching striations. Worthy of note is the fact that lactose will begin to crystallize in glycerin or water mounts within two hours and will proceed to such an extent as to fill the entire slide. The constancy of this crystallization is such that it becomes an excellent indication of skimmed milk in many preparations.

WHOLE MILK POWDERS.

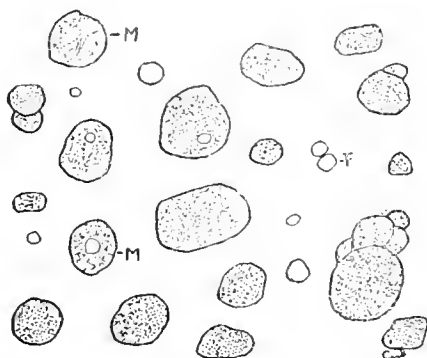
The methods employed in preparing whole or full milk powders are identical with those discussed under skimmed milk and give rise to the same variations in appearance and color. Open dried full milks are deeper in color and even more impossible of reduction to fine powder. Spray dried full milks are more of a cream color than skimmed milks of similar preparation but are as finely subdivided as the latter. Full milks are not as readily mixed with water as the skimmed product, or as it would be put in the trade, they are not as soluble. This fact has been given as a reason why so many manufacturers of imitation articles use skimmed milk powder instead of whole. Incidentally the skimmed product is cheaper. The particles of a spray or vacuum dried full milk are smaller than those of skimmed milk and more regularly spherical in form. Irregular masses are comparatively scarce. The greater number of the masses do not show the fat globules as distinctly as in skimmed milk. For the most part the masses are of granular appearance and pearly lustre. Several masses may be adherent and give the appearance of budding from a main particle. A few show one or two fat globules embedded in the granular substance. Lactose does not crystallize from water or glycerin mounts of whole milk as readily as it does from skimmed milk. Crystallization may be delayed for a day or even longer.

A few preparations are manufactured from open kettle dried milks. This form of milk powder, skimmed or whole, is difficult of description but fairly easy to recognize. The milk particles are in the form of irregular fragments having fat globules scattered over their surface. In full milks dried by this method, the fat globules are very large and almost cover the surface of the fragments. Open dried skimmed milks have smaller and fewer fat globules and many of the fragments of albuminous material are free from adhering globules.

**FIG. 4**

Dried Milk (Open Heating).

M, Milk masses; F, Free fat globules; C, Coagulated material; FC, Coagulated material with fat globules.

**FIG. 6**

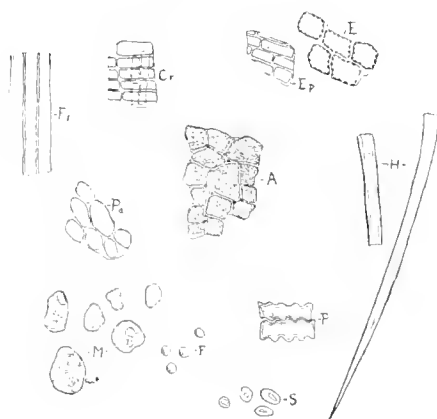
Whole Milk (Vacuum Dried).

M, Milk masses; F, Fat globules.

**FIG. 5**

Skimmed Milk (Vacuum Dried).

M, Milk masses; L, Lactose crystals.

**FIG. 7**

Standard Malted Milk.

Fi, Fiber from malt; Cr, Cross cells from malt; E, Epicarp cells from malt; Ep, Epidermis of spermoderm from malt; Pa, Parenchyma of malt; A, Aleurone cells of malt; H, Hairs of malt; P, Palet cells of malt; S, Starch; M, Milk masses; F, Fat globules.

MALT POWDERS AND PREPARATIONS.

It is common practise with many producers of so-called malted milks to use various malt powders or preparations and merely mix these with certain quantities of powdered milk. A preparation of this sort would be more appropriately named "Malt and Milk" and is entirely different in composition and microscopical appearance from a standard malted milk which complies with the specifications of Food Inspection Decision 170. In examinations of malted milks one will encounter one or more of the following malt products: powdered malt, powdered dried malt extract and diastase. Descriptions with illustrations of these materials in powdered form are here given.

Malt Powder.—Powdered malt exhibits most of the elements of barley although some of these have undergone changes in the malting process. The elements

present, in the order of their relative amounts are: (1) Starch, (2) hairs; (3) outer epidermis of palet; (4) aleurone cells of endosperm; (5) inner epidermis of palet; (6) cross cells of pericarp; (7) parenchyma of endosperm; (8) fibrous tissue; (9) epicarp tissues; (10) tube cells.

The starch is more or less changed by the action of amylolytic ferments during malting. Many of the grains appear to have been eaten away, the central portion or hilum being the first part to undergo digestion; such grains are hollowed out at this point. Other grains show destruction of the outer portions. These partially digested grains when treated with aqueous iodine solution, give the purple to red reaction of amyloextrins and maltodextrins. Depending upon the degree to which the malting process has been carried, we find more or less unchanged starch. Many of the grains showing no physical change fail to give the blue reaction with iodine.

The hairs are of two kinds; short thick-walled and long thin-walled varieties being present in about equal amount. They are usually broken, but the relative thickness of wall to width of the lumen, serves to distinguish one from the other. These hairs were found in every sample of malt and malt product examined.

The outer epidermis of palet is distinguished by the thick-walled wavy cells common to many plants of the Graminaeae family. Between the wavy cells are stoma with guard-cells tightly fitting and almost occluding the actual opening. We also find in this tissue, very short, thick-walled, warty hairs and hair scars.

Aleurone cells of the endosperm are white, thick-walled, angled and closely packed with dark granular nitrogenous material.

Inner epidermis of palet consists of white, thin-walled, long and more or less angled cells. Short thick-walled hairs and nearly square stoma with small but well-defined apertures occur in this tissue.

Cross cells of pericarp are usually adherent to the spermoderm or coat of the endosperm. They are arranged in two layers, one heavy, the other light, consisting in both cases of rectangular, thin-walled cells with or without intercellular spaces. Both layers extend in the same direction and are at right angles to the underlying spermoderm cells.

Parenchyma of endosperm is thin walled, rounded in outline and may or may not contain starch.

Fibrous elements, if occurring singly, may be mistaken for thin-walled hairs, but all fragments of this tissue were in well defined groups, sometimes with remnants of the vascular tissue attached.

The epicarp cells are similar in structure and appearance to those of the inner epidermis of the palet; hairs are present but stoma appear to be lacking.

Tube cells were not apparent in any sample of malt subjected to examination.

Powdered Dried Malt Extract.—This form of malt is probably used more than any other in the manufacture of mixed products sold under the name of malted milk. A great disadvantage is that it is extremely hygroscopic and preparations containing it must be kept very dry or caking will occur. Upon standing in a moist atmosphere for any length of time, secondary fermentations take place and the product assumes a disagreeable odor. It is fairly soluble and when mixed

with skimmed milk powder and used at the soda fountain, produces a beverage without much sediment, of clean white color and even texture. The drink may even have a better appearance than if a standard malted milk had been used.

The elements of note in dry malt extracts are: (1) diastase masses; (2) starch; (3) crystals; (4) tissue fragments; (5) hairs.

The diastase masses are irregular, angled fragments of light yellow color, striated and very soluble. The exact character of this material can only be studied in oil mounts.

Starch is present in small amounts and most of the grains show the effects of diastatic action.

Crystals are very small and for the most part are rectangular in shape with a few of rosette form.

Tissue fragments are mainly loose parenchyma and broken walls of aleurone cells.

Hairs are of types characteristic to malt.

MIXED AND PROCESSED MALTED MILKS.

The Food Inspection Decision definition of malted milk requires that enzymic action shall have taken place and shall have modified the constituents of the mixture. In other words the compound shall have been processed. Malted milks prepared by mechanically mixing certain quantities of powdered milk with malt or malt preparations, no enzymic action having taken place, are conveniently referred to as "mixed malted milks" in distinction to the "processed" products just mentioned. Although patent rights have expired, the details involved in the manufacture of the processed products are not by any means public property and are nearly impossible to obtain from successful producers. Sufficient to say that considerable experience and mechanical equipment is necessary in the work. From the appearance of certain samples, even before the definition was published, I had decided that in the process of manufacture enzyme action had produced certain changes in the materials used. The malt starch was almost entirely digested and not over two or three grains were present in a field. The milk was not in spherical masses containing fat globules embedded in albuminous material although free fat globules were numerous and well distributed. It is certain that in processing, the amylolytic ferments of malt convert the starch to sugars and it may be that the small amounts of proteolytic enzymes in malt have an action upon the albuminous materials of the milk causing their disruption or rendering them soluble in some other manner.

Mixed malted milks are readily identified by the presence of unchanged fat masses, yellowish malt extract particles and the relative scarcity of malt tissues. One must search several fields to locate hairs, starch or other malt elements. Dextrose and soluble particles of malt extract will be visible until dissolved. Oil mounts are necessary for prolonged examinations of these soluble materials. One of the samples submitted for examination was found to be a mixture of powdered malt and milk and displayed all the characteristic elements of both materials. Such combinations are rare and because of the large amount of starch present are not readily soluble or miscible.

The characteristic elements in a standard or processed malted milk, in the order of amounts present, are: (1) free fat globules; (2) milk masses; (3) parenchyma; (4) aleurone cells; (5) palet tissue; (6) malt hairs; (7) diastase masses; (8) starch.

Fat globules are very small, are well distributed throughout the field and are not in aggregates or masses.

Milk masses for the most part are irregular and not spherical in form. Embedded fat globules are present in some of the masses but are almost hidden by the granular substance.

Parenchyma occurs as small, much broken fragments of thin-walled cells.

Aleurone cells withstand the malting process and show very little change from those described under malt.

Palet tissue remains unchanged during processing and is described under malt.

Hairs although much broken are otherwise unchanged.

Diastase masses are similar to those described under dry malt extract. They dissolve rapidly in glycerin or water mounts.

Starch is present in very small amount and the grains show but little change from those of malt.

SUBSTITUTE OR SPURIOUS MALTED MILKS.

Although by far the greater number of spurious malted milks upon the market are merely mixtures of powdered milk, dry malt extract and dextrose, other substances may be present. Chief among

these added materials are various thickeners. The beverage prepared with a standard malted milk is apt to be somewhat thicker in consistency than that prepared with the imitation. To overcome this defect the producers of substitutes often add baked bread products, corn starch and possibly gelatin and gums. Powdered bread crumbs are most used for this purpose as they are cheap and mix rapidly and well with cold water. Starches, gelatin and gums work best in beverages prepared with hot water. Some of the labels attached to these imitation products show much ingenuity in avoiding direct statements that the article is malted milk. The presence of glucose is often accounted for in labelling by the statement that the

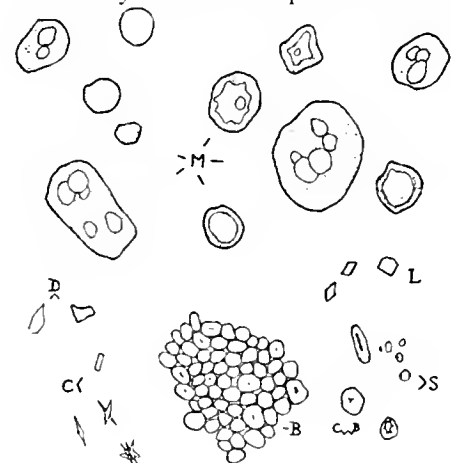


FIG. 8

Substitute Malted Milk.

M Milk masses (skimmed); D, Diastase or extract masses; L, Lactose crystals; C, Crystals from malt extract; S, Starch; B, Powdered bread.

material contains a corn product. Bread crumbs have been covered by the general term cereals. In some cases the substitute is sold under various titles framed for no other purpose than evasion of misbranding ordinances.

The following tabulation of microanalyses is sufficient to show the extent to which sophistication is carried in the manufacture and sale of malted milk:

| Sample. | Sold as | How prepared. | Form of malt. | Form of milk. | Source. |
|---------|-------------------------|---------------|---------------|---------------|--------------|
| 1 | Malted milk | Mixed | Extract | Skimmed | Dairy |
| 2 | Malted milk | Mixed | Extract | Skimmed | Manufacturer |
| 3 | Malted milk | Mixed | Extract | Skimmed | Manufacturer |
| 4 | Malted milk | Mixed | Extract | Skimmed | Manufacturer |
| 5 | Malted milk | Processed | Infusion | Whole | Pharmacist |
| 6 | Malted skim milk | Processed | Infusion | Skimmed | Manufacturer |
| 7 | Malted whole milk | Processed | Infusion | Whole | Manufacturer |
| 8 | Malted milk | Mixed | Extract | Skimmed | Manufacturer |
| 9 | Malted milk | Mixed | Powdered | Whole | Manufacturer |
| 10 | Malted milk | Mixed | Extract | Skimmed | Manufacturer |
| 11 | Malted milk | Processed | Infusion | Whole | Confectioner |
| 12 | Malted milk | Mixed | Extract | Skimmed | Manufacturer |
| 13 | Malted milk | Mixed | Extract | Skimmed | Manufacturer |
| 14 | Malted milk | Mixed | Extract | Skimmed | Manufacturer |
| 15 | Malted milk | Processed | Infusion | Whole | Confectioner |
| 16 | Malted milk | Mixed | Extract | Skimmed | Dairy |
| 17 | Malted milk | Processed | Infusion | Whole | Confectioner |
| 18 | Malted milk | Processed | Infusion | Whole | Confectioner |
| 19 | Malted milk | Processed | Infusion | Whole | Confectioner |
| 20 | Malted milk | Mixed | Extract | Skimmed | Confectioner |
| 21 | Malted milk | Mixed | Extract | Skimmed | Confectioner |
| 22 | Malted milk | Mixed | Extract | Skimmed | Manufacturer |
| 23 | Malted skim milk | Mixed | Extract | Skimmed | Manufacturer |
| 24 | Substitute ¹ | Mixed | Extract | Skimmed | Manufacturer |

¹ Contains bread crumbs.

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THE STABILITY OF CANNABIS SATIVA AND ITS EXTRACTS.

BY HERBERT C. HAMILTON.

A recent publication by Eckler¹ regarding the deterioration of *Cannabis indica* raises a question which can be answered positively only after a long series of experiments such as Eckler himself conducted.

Over a period of five years, samples of crude drug cannabis were kept under observation, storing it under different conditions. He found that it loses from 1 to 2 percent of its activity monthly, depending apparently on the temperature of the storage room. Five years from now, however, the subject will probably have passed so completely out of general interest that there will be no incentive either to complete the experiments or to make the results public, while at the same time such an apparently authoritative statement going unchallenged may lead to a number of errors. It seems advisable, therefore, to publish some data bearing on this question even if it is not based on systematic experiments. In the course of nearly 20 years' experience in applying the physiological assay process to cannabis preparations, a number of unrelated facts are gradually collected which, taken as a whole, have a value not to be ignored.

Cannabis indica, or to use the botanical term to cover *Cannabis sativa* wherever grown, is scarcely deserving of the attention it has received from time to time in recent years. While a potent drug in many respects, its action is not specific in therapeutics and is not that of a deadly poison.

However, as a potent drug in which no active substance with well-defined chemical characteristics has been recognized, it requires standardization and sufficient investigation to insure that inert extracts be kept off the market.

Attention was first called to the variability of the drug by Houghton,² who found that about 50 percent of the fresh samples of crude drug were devoid of activity.

Later, Houghton and Hamilton³ described a method by which extracts can be standardized and uniformity established in the quality of commercial extracts. It depends on the fact that dogs react to the drug in a degree proportionate to the amount of a standard product administered, and that the reaction is not only characteristic but measurable.

This method, on which all the later modifications have been based, has served as a means of eliminating most of the worthless drug from the market and of discovering evidences of deterioration. Thus it was observed that Powdered Extract Cannabis is apparently an unstable form since several samples have been found inactive. In one case⁴ some step in the process of manufacture caused immediate and almost complete loss of activity.

No other evidence of deterioration has been observed, however, except that which tends to corroborate the data published by Marshall⁵ and quoted by Eckler. The deterioration of the substance to which the name of cannabinol was given while easily demonstrable, does not prove anything about the drug itself or its extracts except when similar phenomena are shown to exist in each. The conclusion which Marshall drew from his observation that "There is good reason to believe that preparations of *Cannabis indica* relatively quickly deteriorate" is not based on any data submitted and is not justified by any data obtained except the two preparations already mentioned. Marshall himself did not apply it to the drug, while Eckler concludes that the crude drug alone is under suspicion, not having observed any deterioration in the fluidextract.

Observations on the crude drug other than samples of indefinite age, are limited to two which will be described below. During a long experience in assaying samples of the crude drug before or immediately after purchase, no low activity has been observed except such as is easily referable to its physical or botanical properties. For example, low activity may be expected from samples consisting of sweepings or from those consisting largely of stems or seeds, or from those having a low yield of alcohol-soluble extractive. (NOTE: By alcohol-soluble extractive is meant the part which will redissolve in 95 percent alcohol after twice evaporating to complete dryness on the steam bath.) Low activity of crude drug other than the exceptions noted would prove nothing in itself because of having no data as to the age of the sample.

Inquiry among holders of crude drug rarely brings to light samples much over 1 year old in stock, and the standard is usually made from drug no fresher than this.

Two samples, however, have recently been obtained from shelf bottles, one 14 years on the shelf and the other at least 21 years and probably longer, 21 years being the limit of the botanist's knowledge. The results of an assay of these two samples in comparison with standard are as follows:

| | |
|-----------------------|------------|
| 14-year old drug..... | 70 percent |
| 21-year old drug..... | 20 percent |

The first was known to the writer to be of good quality, probably fully standard. The second lot was probably also a first-class quality of *Cannabis indica* from its appearance, but there were no recorded tests in existence to prove its activity.

Exact data on old F. E. *Cannabis indica* is limited to one sample other than an occasional retest of samples not over 2 or 3 years old which are almost invariably as active as when fresh. The old sample referred to above was obtained from Hutton and Hilton, retail pharmacists of Washington, D. C. It was prepared by Squibb and had been on the shelf for 17 years. The assay showed a value equal to about 70 percent or between two-thirds and three-fourths as strong as standard. Its original value may be assumed to have been 100 percent.

Exact data on Extract *Cannabis sativa* is limited to one sample, an extract of *Cannabis Americana* first selected for a series of experiments to prove the applicability of the physiological assay to drug intended for clinical use.⁶ This sample has been in constant use in our laboratory for 9 years as a standard for the selection of dogs for assaying cannabis. It is at this time as active as an extract of the best obtainable commercial lots of *Cannabis indica*. It is rare indeed when any extract exceeds it in activity. The sample is kept in a tin can with tightly fitting lid, but is opened on an average not less often than once every week.

The bottles containing the crude drug are 1-pound flint glass, glass-stoppered bottles which have never been sealed and have been kept on shelves exposed to the light and variations of temperature normal to a laboratory work room.

That the above results are not open to the suspicion of being obtained on the basis of a standard of low activity is demonstrated by the fact that comparison was made with a standard which has recently been proposed and prepared by Pearson.⁷ This is in line with a similar suggestion by Lyons⁸ and with that by Hamilton.⁹ It eliminates the variable standard suggested in the Ninth Revision of the U. S. P., and provides identical material for comparison in the several laboratories.

The results summarized above are based on administering doses to dogs and observing the degree of the reaction, comparing the effect in each case with that of a product of known good quality. The dogs' behavior under cannabis must have been previously observed since no two react in exactly the same way. The reaction which is described as "well-marked" or "standard" refers to the incoordination and is not absolute but only relative to that produced by the Standard on that dog.

The doses used and the observed reactions are the bases of the results described in the foregoing article and are given in detail below, the work having been carried out by my colleague, L. W. Rowe:

Sample No. 1 is F. E. *Cannabis indica* from 14-year old drug.

Sample No. 2 is F. E. *Cannabis indica* from 21-year old drug.

Sample No. 3 is F. E. *Cannabis indica* from Hutton and Hilton, Washington, D. C.

Sample No. 4 is S. E. *Cannabis Americana*.

Sample No. 5 is F. E. *Cannabis indica*, mixture of 4 commercial samples supplied by Pearson.

| | Dose per kilo. | Result. |
|---------------|----------------|------------------------------------|
| Sample 1..... | 0.08 mil | Slight incoördination |
| | 0.10 mil | Distinct |
| | 0.12 mil | Well marked |
| | 0.14 mil | Standard |
| Sample 2..... | 0.10 mil | No reaction |
| | 0.20 mil | Very slight |
| | 0.30 mil | Slight |
| | 0.40 mil | Well marked |
| | 0.50 mil | Standard |
| | 0.60 mil | Very marked incoördination |
| Sample 3..... | 0.10 mil | Distinct |
| | 0.12 mil | Well marked |
| | 0.15 mil | Very marked incoördination |
| | 0.12 mil | Well marked, but scarcely standard |
| Sample 4..... | 0.008 mil | Well marked |
| | 0.010 mil | Standard |
| | 0.012 mil | Very marked incoördination |
| Sample 5..... | 0.08 mil | Well marked |
| | 0.10 mil | Standard |
| | 0.12 mil | Very marked incoördination |
| Sample 6..... | 0.025 mil | No reaction |
| | 0.03 mil* | Slight incoördination |
| | 0.04 mil | Distinct incoördination |

* This is the result using the U. S. P. dose and observing the conditions rigidly

The above data leads to the conclusion that the rate of deterioration of *Cannabis sativa* and its official extracts is much slower than would be assumed from Eckler's work and that for practical purposes it may be ignored.

REFERENCES.

- (1) Eckler, J. A. Ph. A., Vol. 6, p. 812.
- (2) Houghton, J. A. M. A., Vol. 28, p. 634.
- (3) Houghton and Hamilton, A. J. of P., Jan., 1908.
- (4) Hamilton, J. A. Ph. A., Vol. 4, p. 448.
- (5) Marshall, Pharm. Jour., Vol. 28, p. 418.
- (6) , J. A. Ph. A., Jan., 1913.
- (7) Pearson, J. A. Ph. A., Vol. 6, 1917, p. 876.
- (8) Lyons, J. A. Ph. A., Vol. 6, 1917, p. 877.
- (9) Hamilton, Am. Journal of Pharmacy, Feb., 1917.

FROM THE RESEARCH LABORATORY OF
PARKE, DAVIS & CO., DETROIT.

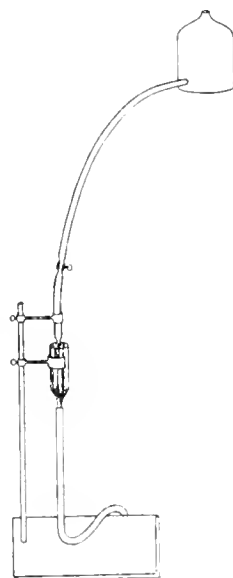
THE SOLUBILITY OF PHOSPHATIC KIDNEY STONES.

BY J. F. GEISINGER, M.D., W. F. RUDD AND E. V. GREEVER.

It is unnecessary to explain that any measure contributing to the non-operative removal of urinary calculi is a desideratum of some moment. So common is the condition and so imperative is its demand for attention that a new method of attack need only demonstrate its safety and efficiency to be immediately adopted with enthusiasm.

Operation alone will remove large calculi in the kidney or renal pelvis. About 50 percent of the small stones, however, are according to some statistics, spontaneously expelled if the patent is not hurried into the hands of an over-zealous surgeon. For the remaining 50 percent the cystoscope has done much. We are now cutting the ureteral orifices, dilating the ureters, changing the axis of ureteral stones by catheter manipulations, and injecting around the stones various substances, including lubricants (glycerin) and ureteral relaxants (papaverin). By this means many stones are being teased out or actually picked out with forceps when low enough in the ureter. There always remains, however, a certain number of small stones which will respond to none of these methods and others which will finally yield only after prolonged cystoscopic coaxing, more or less torturing to the patient. It was in consideration of this class that the writers attempted to evolve some additional method short of operation. No consultation of the literature has been made and the method may or may not have been proposed or used before.

It is, of course, well known that certain urinary concretions appear to depend on the acid-alkaline content of the urine. This fact has led to the oral administration of numerous "solvents" which were intended to alter the reaction of the urine and cause dissolution of the calculus. Dismal failure has met this line of treatment. On the same principle that we now irrigate infected renal pelvises with formaldehyde and no longer blindly (and uselessly) give urotropin by mouth and trust to Providence to deposit it in the pelvis in the shape of formaldehyde in sufficient quantity, it occurred to us to make a direct introduction of the solvent. Briefly, it is proposed, in a given case, to introduce through a cystoscope a catheter up to the point of lodgment of a stone in the ureter. Through this catheter the solvent will then be allowed to pass drop by drop on the stone until the mineral contents have been dissolved and the concretion has been reduced to the pulp described hereafter. Two courses are then open: (1) The catheter may be withdrawn and ureteral peristalsis allowed to expel the concretion which can now be easily moulded to any shape. (2) A fish-mouth catheter (now under construction) may be passed up to the concretion and the soft pulp aspirated into the mouth of the catheter by means of a suction apparatus, such as a hypodermic syringe. Details of the technique are clear in the mind of the writer but need not be entered into here.



It is, of course, important to be certain in advance that the acid will do no damage to the kidney. We had planned extensive animal experimentation in

connection with this point and several other points associated with the problem. We had also proposed an attempt to extend the applicability of the method to stones other than phosphatic. Unfortunately, circumstances have interrupted this programme and the prospect of an early transference of Dr. Geisinger to France or some other portion of the war zone, makes it unlikely that the subject can be further studied for many months. Hence, it may be that we are premature in introducing the discussion; our results thus far, however, have been of such a character as to lead us on with great enthusiasm, and perhaps this publication will at least induce others to carry the work out to definite conclusions on one side or the other.

The following tables indicate results of experimental work on the stones *in vitro*,

The solution to be used was placed in the one-gallon bottle and the flow regulated by means of the screw clamp so that from 12 to 27 drops would drop on the stone per minute. This was allowed to run until the stone became soft.

An interesting feature about this was that the stones contained some organic matter which, while saturated with the solution, remained as large as the original stone and of the same color but of such a consistency that they could hardly be handled without breaking, and could easily be moulded into any shape. On drying, this residue would contract to about one-tenth of its original size and become dark brown to black in color.

At frequent intervals (except in Stones C and D, Experiment 1), the stone was taken out and examined to determine whether or not the inorganic constituents had been dissolved.

After the stone had become soft, which showed the inorganic constituents had been removed, the residue was dried and weighed.

TABLE 1.

An analysis of these stones indicated the presence of the following radicals:
Calcium, traces of magnesium, phosphate and traces of carbonate.

| Stone. | Weight. | Solution used. | No. of drops per minute. | No. Cc. used. | No. Cc. used per mg. | Weight of residue. |
|--------|---------|----------------------|--------------------------|---------------|----------------------|--------------------|
| A | 0.1778 | 2% aluminium acetate | 25 | 500 | 2.81 | 0.1694 |
| B | 0.3352 | 5% ammonium chloride | 27 | 2000 | 5.98 | 0.3302 |
| C | 0.1316 | 1% hydrochloric acid | 19 | 2500 | 19 | 0.011 |
| D | 0.1694 | 1% hydrochloric acid | 20 | 720 | 4.25 | 0.0132 |
| E | 0.1818 | 1% hydrochloric acid | 15 | 80 | 0.44 | 0.0118 |

The large amount of solution used in C and D was due to the fact that we could see no change in size or color of the stone and, therefore, could not tell when all the mineral constituents were dissolved.

Stone E was observed very carefully to determine the minimum amount that was necessary.

TABLE 2.

An analysis of these stones indicated the presence of the following radicals:
Calcium, magnesium, phosphate and traces of carbonate.

| Stone. | Weight | Solution used. | No. of drops per minute. | No. Cc. used. | No. Cc. used per mg. | Wt. of residue. |
|--------|--------|-------------------------|---------------------------------------------------------------------------|---------------|----------------------|-----------------|
| A | 0.0727 | 0.26 hydrochloric acid | 15 | 390 | 5.38 | 0.006 |
| B | 0.1202 | 0.13 hydrochloric acid | 5 to 7 Cc. were allowed to run on the stone and remain for 1 to 2 minutes | 860 | 7.15 | 0.007 |
| C | 0.1414 | 0.13% hydrochloric acid | 18 | 500 | 3.56 | 0.006 |
| D | 0.2864 | 0.13% hydrochloric acid | 20 | 2090 | 7.37 | ... |

In an attempt to duplicate the natural condition in the body, stone D was placed in the large tube. An equal number of drops of the hydrochloric acid solution and urine obtained from the patient, were then allowed to flow through a tube and drop on the stone. This made approximately a 0.06 percent solution of hydrochloric acid acting on the stone till it was dissolved, which took about 48 hours.

From the experiments which we have reported, we feel justified in making the following statements:

First, that a 0.06 percent solution of hydrochloric acid will dissolve phosphatic stones.

Second, that the length of time the solution is in contact with the stone is a more important factor than the rate of flow.

In a limited way we have already demonstrated that acid eight times the strength of that to be employed clinically has no deleterious effect in the pelvis of a dog's kidney. Furthermore, we have used the acid in 0.5 percent solution in one patient with phosphatic diathesis and not only did no harm but accomplished excellent temporary results. Finally, in the treatment of renal infections, we have in scores of cases irrigated the pelvis with silver nitrate varying in strength from 1 : 1000 to 5 percent and with formaldehyde solution varying in strength from 1 : 5000 to 1 : 1000. This is an accepted and highly effective treatment for this condition. Certainly the mild hydrochloric acid solution—less than ($\frac{1}{8}$ of 1 percent) will prove no more irritating than these pungent solutions. If it be objected that the process required a continuous hydrochloric acid drip lasting perhaps through several hours, we will reply (with a citation of cases if necessary) that we have conducted a continuous formaldehyde irrigation of the renal pelvis lasting from 3 to 24 hours and the patients have not only survived the treatment but recovered as a result of it.

Summed up in a word, we are satisfied that in expert hands the method will prove harmless, and if time permits we propose to put it to immediate clinical use. Only the results of its application in a series of actual cases will determine unequivocally whether it deserves the consideration it now appears to demand or whether it will eventually find its way to the therapeutic scrap-pile.

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A NEW METHOD OF EXTRACTING DRUGS FOR ALKALOIDAL ASSAYING.*

BY WM. MASKE, JR.

In brief, the U. S. P. method for extraction of most drugs for alkaloidal assaying consists of macerating a weighed portion of the drug in an alkaline solution of ether, chloroform, or a mixture of the two for a certain length of time; then pouring off an aliquot part of this extractive.

There are some things in this method of extraction which all chemists will admit are undesirable, if a satisfactory method of improving them can be obtained.

* Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

In the first place, we have no means whereby we can easily test whether or not the crude drug has been completely extracted of its alkaloidal constituents; and, in the second place, the use of aliquot parts has always been considered a makeshift, and it is particularly so in alkaloidal assaying, since the moisture content of the drug and the addition of ammonia water produce changes in the volume of the extracting solvent which cannot but help to make the assay somewhat inaccurate.

The following method devised by the writer overcomes both of these errors; it is simple, and will be a useful remedy to the aliquot part method. There are only two things standing in the way of it; first, the method takes a longer time. Although the actual time that it takes is longer, yet it requires no more work on the part of the operator than the U. S. P. process. Secondly, the liquid with its extractive from the crude drug must be a very limpid one; hence the liquid used for extracting the drug must be ether, chloroform, or one of similar limpidity; and the drug itself must contain no fatty matter, or anything else that will impair the limpidity of the menstruum.

This new method of extraction is carried out as follows:

Into the stop-cock orifice of a separatory funnel there is inserted a wedge-shaped piece of purified cotton, to act as a filter but at the same time not be too slow in acting as such; a little experience will enable one to know just how tightly to have it fit. Both ends of the piece of cotton are cut off flush with the surface of the stop-cock, and the ends are slightly pushed in with a blunt instrument. The stop-cock is then wiped off with a clean towel so as to remove all cotton fibers, and finally reinserted into the separatory funnel. In selecting a separatory funnel for this process be sure to get one in which the stop-cock orifice has a fairly wide bore. No cotton fiber must be left on the plugged stop-cock or the apparatus will leak.

The drug to be assayed is weighed out. Less drug is needed than by the U. S. P. method. The amount of drug taken is not the amount used in the U. S. P. but the amount of drug that the aliquot part used for shaking out represents. Place this drug into the prepared separatory funnel and add half the amount of solvent directed in the U. S. P. method. The amount of solvent need not be accurately measured; it need only be approximate. Stopper and shake thoroughly; then add the amount of ammonia directed by the U. S. P. Shake every five minutes for one hour. Then pour about 10 Cc. of solvent around the rim of the funnel so as to wash any drug adhering to the sides into the menstruum. Stopper and let stand over night.

Then open the stop-cock and stopper and allow the extractive to filter off into another separatory funnel. When most of the filtrate has run off and it begins to drop slowly carefully add about 10 Cc. of the extracting liquid and let this filter off. This process of displacement is continued in 10 Cc. portions until a few drops of the filtrate evaporated to dryness and dissolved in 1 Cc. of $N/10$ HCl does not give more than faint opalescence with an appropriate alkaloidal precipitant. The combined filtrates are then made acid and the assay continued as given in the U. S. P.

In addition to overcoming errors, this method uses less drug, and usually less solvent than the U. S. P. method of extraction. In order to show that this method gives higher and better checking results than the U. S. P. process in practice as well as in theory, the following results are appended here. In eight assays of belladonna root, four carried out by each method of extraction, the results were as follows:

By the U. S. P. method of extraction the percents of alkaloids ran as follows: 1.59 percent, 1.69 percent, 1.56 percent, 1.64 percent. By the new method of extraction 1.66 percent, 1.71 percent, 1.66 percent, 1.65 percent. In eight cinchona assays carried on in the same way the results ran as follows: By the

U. S. P. extraction method, the percentage of alkaloids was 6.31 percent, 6.28 percent, 6.41 percent, 6.24 percent. By the new extraction method, 6.37 percent, 6.39 percent, 6.34 percent, 6.40 percent. In another assay of cinchona, the writer took two samples, each five grammes, from the same batch of cinchona and got the same weight of alkaloid from each down to the fourth decimal place. This is the only perfect check that he has ever obtained in the hundreds of alkaloidal assays that he has run.

This method of extraction is applicable to all U. S. P. alkaloidal assays of crude drugs except *colchicum* seed, *colchicum* corm, opium and *physostigma*.

UNIVERSITY OF WASHINGTON,
COLLEGE OF PHARMACY.

SOME POSSIBLE PHARMACEUTICAL USES OF PARA-DICHLORBENZENE.

A PLEA FOR THE USE AND FURTHER INVESTIGATION OF A BY-PRODUCT RESULTING FROM THE WAR.

BY W. A. KONANTZ.¹

In the chlorination of benzene at ordinary temperatures, about 85-90 percent of monochlorobenzene and 10-15 percent of dichlorobenzene, chiefly para, are produced. At the present time enormous quantities of benzene are being chlorinated, for it has been found that picric acid can be made more cheaply from monochlorobenzene than from phenol. At the same time, however, large quantities of dichlorobenzene are accumulating, for which there is very little demand. For the complete success of this most valuable process of manufacturing picric acid, it is necessary that uses be found for the dichlorobenzene. Owing to the firmness with which the chlorine atoms are attached to the benzene nucleus, *p*-dichlorobenzene does not enter readily into chemical reactions, and all attempts to convert it into other commercially valuable compounds have so far been unsuccessful. The physical properties of this substance are such, however, that the writer believes it may prove of considerable value in pharmacy. Some possible pharmaceutical uses which have occurred to the writer are here described, in the hope that pharmacists and manufacturers will try them out and so help to solve the problem of utilizing this by-product.

From the viewpoint of the pharmacist, the most valuable property of *p*-dichlorobenzene, and the one upon which most of its pharmaceutical uses will undoubtedly be based, is its powerful destructive action on certain lower forms of life. Galewsky, who studied the relative efficiency of many substances as moth exterminators,

¹ Research Chemist, College of Pharmacy, University of Iowa.

reported (*Z. Textil. Ind.*, 1915, 506) that *p*-dichlorobenzene is the most effective agent for this purpose, being superior to naphthalene, which is generally used. Many tons of *p*-dichlorobenzene could, undoubtedly, be disposed of annually in the form of moth-balls, moth-powders, moth-solutions, moth-paper, etc., if it were properly pushed. In physical properties *p*-dichlorobenzene resembles naphthalene very closely. It occurs as transparent, colorless flakes, somewhat unctuous to the touch, and of a faint, rather agreeable, camphor-like odor. It melts at 53°C . and boils at 172°C ., the corresponding constants for naphthalene being 79°C . and 218°C .; it is, therefore, more volatile than the latter. Besides its greater efficiency as a moth exterminator, *p*-dichlorobenzene has the added advantage over naphthalene that the odor can be more readily removed from garments with which it has been packed. Strips of cloth saturated with a concentrated solution of *p*-dichlorobenzene in gasoline and dried, lost the odor completely after several hours of airing in the sun. The writer further finds that *p*-dichlorobenzene can be easily compressed into tablets with an ordinary tablet machine, and that it can also be readily formed into balls by melting and pouring it into molds. On the whole, *p*-dichlorobenzene seems excellently adapted for use as a moth-repellant, and, as it can probably be bought for less than naphthalene, it deserves to supplant the latter for this purpose. The writer earnestly recommends that pharmacists and manufacturers introduce and push it as a moth exterminator.

The effect of *p*-dichlorobenzene on moths suggests that it may also be of value in exterminating or repelling other pests. Dissolved in benzine or any other suitable solvent and applied as a spray to the joints of woodwork, to clothing which has been attacked, and to other articles, it may prove effective against various insects, bedbugs, roaches, ants, flies, etc., and their eggs or larvae. On account of the inflammability of benzine, it may well be replaced by carbon tetrachloride as a solvent, since the dichlorobenzene is very soluble in this liquid, and also in alcohol, ether, chloroform and benzene. Solutions of *p*-dichlorobenzene may also prove useful against vermin on animals and birds, and as a spray for plants.

It is also possible that the insecticidal and antiseptic properties of *p*-dichlorobenzene may render it applicable in the treatment of certain skin diseases. The writer finds that it is very soluble in petrolatum, lard and many fixed and volatile oils, and large quantities of it can be easily incorporated by simply stirring it into the melted base.

Many other uses for *p*-dichlorobenzene, than those which have here been briefly mentioned, may suggest themselves to those who will give the subject a little thought and carry out a few experiments. The attention of pharmacists and manufacturers has been called to this problem because it is nationally and commercially important that it be solved as soon as possible. It is hoped that those who work on the problem will publish their results, even though they may be negative, in order that the greatest possible good may come of their efforts. The writer will be glad to give such assistance as he can to any one who is interested.

THE CHEMISTRY OF THE HEPTANE SOLUTION.*

BY EDWARD KREMERS.

This investigation has grown out of the phytochemical studies of two California pines, *viz.*, *Pinus sabiniana* and *Pinus Jeffreyi*; and, subsequently, out of the desire to introduce heptane as a solvent for a variety of purposes. One of the uses to which heptane was put was that of a vaporizer of water in moisture determinations according to one of the modifications of the so-called xylene method. In this application it soon became apparent that heptane, like xylene, might serve an additional purpose. Since it is a highly selective solvent, the use of an excess of heptane enables the investigator to test for a variety of substances in a preliminary manner. In order to know what substances might be tested for, it became necessary to acquire a better knowledge of the solubility of a large variety of substances, not only of those found in plants, but of chemicals in general. In order to supplement the range of substances more readily soluble in hot than in cold heptane, *viz.*, those that might be expected to crystallize out upon cooling after the completion of the moisture determination by a knowledge of those that might be expected to remain in solution, an extension of the work originally contemplated had to be undertaken.

While it is quite feasible, in part, to test this heptane solution with the ordinary reagents in aqueous solution, the desirability to test the heptane solution with reagents also in heptane solution soon presented itself. This lead almost immediately to striking results. As a matter of fact, the results soon became so numerous that they threatened to confuse. Hence, a systematic survey was undertaken, which yielded new data at every turn. A mere attempt to enumerate them would require hours.

The peculiar chemistry thus opened up has been designated a "new chemistry." While it is well known that chemists have long experimented with petroleum ether and other mixtures of unknown composition, the heptane used (not the commercial mixture that sails falsely under this flag) is a definite chemical substance capable of an unusual degree of purification. Moreover, it is worth while to work quantitatively with such solutions, hence the determination of the physical and chemical constants of the solutions adds materially to the significance of the study of the chemistry of the heptane solution.

* An abstract of the subject submitted by the author at the Indianapolis meeting, A. Ph. A., 1917.

PRACTICAL PHARMACY SECTION

ELIXIRS OF THE NATIONAL FORMULARY.*

BY HORATIO C. WOOD, JR., M.D.[†]

Despite the fact that the National Formulary is a legal standard, in many states on a parity with the United States Pharmacopoeia, it has failed to come into general use by the medical profession. This is unfortunate, because there are in it many excellent formulas which should be valuable additions to the physician's armamentarium. It seems to me, therefore, to be well worth while to inquire into the reasons for this lack of confidence in the book, with the idea that in future editions these faults may be corrected so that it shall receive more popular acceptance. This distrust has been engendered in large part by the fact that the book contains so much that is unworthy of an official standard, that physicians in general have a sort of fear of its reliability. While there are a few things in the Pharmacopoeia which might better be omitted, as a whole that work is so excellent that the medical profession in general have an idea that anything in the Pharmacopoeia must be all right. Certainly they have no such feeling as concerns the National Formulary. This is a great pity, because a widely accepted book of the character of the National Formulary would not only be of large use to the medical profession in illustrating elegant modes of prescribing but would, I believe, serve a useful purpose in lessening the employment of nostrums. Therefore, although the criticisms I am about to offer may seem like disparagement they are really constructive and offered with the hope that in the future the National Formulary may be purged of some of these glaring faults. In order to show how a little blue penciling would have improved the present edition of the National Formulary, I have chosen the elixirs as one of the important vulnerable subjects.

As a whole, doctors do not possess a very extensive knowledge of the subject of properly flavoring their prescriptions. Most of them, however, do know that there is an official aromatic elixir and that it has a rather agreeable taste, and many physicians are prone to employ it almost routinely as a vehicle. They do so, not because of the universal suitability of this elixir, but because of their ignorance of other methods of disguising unpleasant tastes. One would have thought, however, that a committee of such eminent pharmacists as those who have charge of the preparation of the National Formulary would have been able to devise an acceptable substitute which might afford an occasional variant. Out of seventy-six elixirs recognized by the National Formulary, fifty-two contain aromatic elixir, and two others, compound spirit of orange. Nor is the aromatic elixir by any means always the most successful flavor which might have been chosen. I remember well a very interesting paper by Mr. Beringer on the value of vanilla to disguise the taste of bromides, and I presume it was this contribution of Mr. Beringer's which led to the recognition of the compound elixir of vanillin. It seems a strange whimsy of fate, therefore, that not a single one of the elixirs of the bromides contains any vanilla. We have the elixir of ammonium, calcium, lithium, sodium, and potassium bromide, all of them flavored with syrup and aromatic elixir.

* Read before Philadelphia Branch A. Ph. A., March meeting, 1918.

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While on the subject of the bromides, attention might be called to the absurd and inconsistent proportions which these elixirs contain. The elixirs of ammonium, calcium, and lithium contain $8\frac{1}{2}$ percent of active ingredient. The official dose for the first two of these is given as one fluidrachm, so that the patient would receive five grains of the bromide at a dose, which is a quantity too small to have any appreciable influence. The elixir of lithium bromide contains the same quantity of active ingredient—in fact, when we allow for its lesser atomic weight it contains actually a larger amount of bromide—and yet the dose is given as two fluidrachms. Still more ridiculous in inconsistency is the elixir of sodium bromide, which contains $17\frac{1}{2}$ percent as opposed to $8\frac{1}{2}$ percent in ammonium bromide and yet is given in twice as large dose.

While on the subject of dosage and to show the total unsuitability of aromatic elixir for some purposes, may I call attention to the elixir of potassium acetate? This contains approximately five grains of potassium acetate in a fluidrachm of aromatic elixir and the average dose is given as four fluidrachms, which represents a reasonable but not excessive amount of the active salt. This amount of potassium acetate is often repeated every two hours, which means that a patient would take in the course of one day an amount of alcohol equivalent to four ounces of whisky. In view of the call being made for conservation of alcohol, this certainly seems a wicked waste of ardent spirits, the more so because potassium acetate is often used in conditions in which alcohol is absolutely harmful.

The editors of the National Formulary prepared two elixirs which were practically free from alcohol and then proceeded not to use them. Lithium salicylate is used practically only in the treatment of gout, in which all physicians are agreed that alcohol is injurious, and yet to get an efficient dose of lithium salicylate in the form of the elixir, the unfortunate patient must ingest the equivalent of nearly half an ounce of whisky with every dose.

A COMPARISON OF THE DOSES OF N. F. ELIXIRS WITH THE U. S. P. AVERAGE DOSES OF THEIR CONSTITUENTS.

| | Amount in average dose of N. F. elixir. | U. S. P. average dose. |
|-----------------------------------|-----------------------------------------------|---------------------------|
| Elixir Ammonii Bromidi..... | 5.1 grains | 15 grains |
| Elixir Ammonii Valeratis..... | 2.1 grains | 8 grains |
| Elixir Buchu..... | 7.5 grains | 30 grains |
| Elixir Calcii Bromidi..... | 5.1 grains | 15 grains |
| Elixir Calcii Hypophosphitis..... | 4.2 grains | 8 grains |
| Elixir Cascarae Sagradae..... | 30.0 grains | 15 grains |
| Elixir Ferri Phosphatis..... | 2.1 grains | 4 grains |
| Elixir Gentianae..... | 2.1 grains | 15 grains |
| Elixir Guaranæ..... | 12.0 grains | 30 grains |
| Elixir Lithii Bromidi..... | 10.2 grains | 15 grains |
| Elixir Lithii Citratis..... | 10.2 grains | 8 grains |
| Elixir Pepsini..... | 1.0 gram | 8 grains |
| Elixir Phosphori..... | $\frac{1}{120}$ grain | $\frac{1}{120}$ grain |
| Elixir Potassii Acetatis..... | 20.4 grains | 15 grains |
| Elixir Potassii Bromidi..... | 21.0 grains | 15 grains |
| Elixir Sodii Bromidi..... | 21.0 grains | 15 grains |
| Elixir Sodii Hypophosphitis..... | 2.1 grains | 15 grains |
| Elixir Sodii Salicylatis..... | 5.1 grains | 15 grains |
| Elixir Terpinæ Hydratis..... | 1.0 grains | 4 grains |
| Elixir Viburni Prunifolii..... | 7.5 grains | 30 grains |

I have thought it might be interesting to compare the quantity of the active ingredients in the officially recommended dose of some of these elixirs with the average dose as given by the United States Pharmacopoeia. I have, therefore, prepared a table showing these comparative doses.

I should like to direct notice especially to the elixir of buchu, containing one-fourth the U. S. P. dose; to the elixir of pepsin, with one-eighth the U. S. P. dose; and, on the other hand, to the elixir of phosphorus with double the pharmacopoeial quantity. The latter is especially objectionable not only because one-sixtieth of a grain of phosphorus is a dangerously large quantity but also on account of the difficulty of reducing the dose.

In looking over the group of elixirs as a whole, one gets the impression that less thought has been expended on many of them than many a doctor would give to a single prescription. For instance, such a thing as the elixir of cascara sagrada, made by simply mixing together equal parts of aromatic fluidextract of cascara sagrada and aromatic elixir seems to me to be an insult to the medical profession as suggesting that they have not intelligence enough to dilute the aromatic fluidextract of cascara sagrada, as well as being far from a triumph of pharmaceutical skill. All such simple combinations as elixir of lithium citrate, of potassium acetate, of the various bromides, of ferric phosphate, etc., might much better be left to extemporaneous prescribing where the doctor could adjust the dose to suit the case at hand.

When we come to study the complex elixirs, those which contain several active ingredients, we begin to tread that dangerous ground of therapeutic efficiency, about which there is much difference of opinion. I am not going to say anything about the advisability, let alone the justifiability, of the use of elixir of hypophosphites, of gentian, of corydalis, or of the formates, except to express my personal opinion that they serve no useful purpose, but I must confess that I stand in amazement at the perfervid imagination which could conceive of a pathological condition where such a conglomeration as the elixir of pepsin, bismuth and strychnine could be indicated. This wonderful concoction contains a trace of the digestive enzyme which is killed by alcohol and murdered by a heavy metal, plus a small quantity of a feeble astringent and an infinitesimal amount of a nerve stimulant.

While talking about pepsin, may I inquire what is the idea of the elixir of pepsin and iron, or of the elixir of cinchona, pepsin and iron? The only possible excuse for the elixir of cinchona alkaloids, iron, bismuth and strychnine is the old idea of "the more the messier." Know ye not, brethren, that pepsin is chemically incompatible with the heavy metals and that alcohol destroys its enzymic activity?

Having called attention to a few of the more glaring faults of these elixirs, I am hearing you wonder whether I have nothing in the way of favorable criticism. Yes, I believe that the elixir of bitter almonds, of anise, of vanillin, of eriodictyon and of gentian deserve recognition as flavoring agents. The elixir of phosphorus may also be of service as affording a pleasant means of exhibiting a drug rather difficult to manage. Perhaps the elixir of iron, quinine and strychnine, of terpin hydrate and of compound glycerophosphates might be continued as concession to those who believe that they possess utility and as being rather difficult for the physician to prescribe extemporaneously. The elixir of sodium bromide, of three bromides, of iron phosphate, of sodium salicylate, and compound elixir of black-

berry, and possibly one or two others might, after some modification, be afforded recognition, but certainly both medicine and pharmacy would be vastly improved by deleting at least sixty of these elixirs as being either unnecessary, useless, or absolutely injurious.

ABSTRACT OF DISCUSSION.

CHARLES H. LAWALL: Dr. Wood's paper contains some very interesting and valuable food for thought and some interesting points are brought out. It must not be forgotten that a large number of preparations are in our U. S. P. and N. F. because the physicians prescribe them and there is a consequent necessity for their standardization.

I remember hearing that a very eminent member of the U. S. P. Revision Committee once said that the basis for admission to the U. S. P. should be the amount of use of a product by physicians and that if there were a sufficiently large number of physicians prescribing brick dust, that article should have standards set for it in the U. S. P. It may be interesting to Dr. Wood, too, to know that the eminent authority credited with the statement was Dr. Horatio C. Wood, Sr.

GEORGE M. BERINGER: There is much in this paper that we can approve and I am thoroughly in accord with many of the statements of Dr. Wood. In my experience in the revisions of the U. S. P. and N. F., I have learned that all revision work is largely made up of compromises and in the Committee on N. F. some of the points here presented were discussed, and while my personal views, for example, as to the proper flavorings for bromide elixirs, were presented, the majority of the Committee were averse to making any change in the flavoring.

Human work is always characterized by some inconsistencies and these inconsistencies and errors as much as the progress of medical sciences necessitate revisions of the standard authorities. When the Federal Food and Drugs Act of 1906 was enacted and specified the tests laid down in the National Formulary as the legal authority for N. F. drugs, we were confronted by a rather anomalous situation as the N. F. laid down no tests, as the N. F. III had been prepared without the thought that it was to be made a legal authority. This necessitated a far more thorough revision of the N. F. than had been previously attempted and it must be admitted that the Fourth Edition is entirely different in character and scientific standing from its predecessors, and further, that it will compare favorably with similar formularies of foreign countries and that it well serves its position as a companion authority with the U. S. P. I fear that we have overlooked that all of such works are the results of evolution and the U. S. P. is now the Ninth Revision while the N. F. is but the Fourth Edition. As such it should be compared with some of the earlier revisions of the U. S. P.

In the National Formulary the pharmacist must, as in other matters, follow the physician and the practice of the medical profession in the United States is responsible for the existence of many of the formulas criticised as therapeutically inactive. While this may be so, the committee on N. F. found that these were so extensively used throughout the country that an official formula was necessary. In a prefatory note the Committee distinctly stated that they were not responsible for the therapeutic value of the formulas presented. Their duty was plainly the making of standards and formulas that were satisfactory from the pharmaceutical standpoint. How well they have discharged this duty is of course open to criticism, but the inclusion of formulas, even though they may be, from the viewpoint of the therapeutic experts, errors are faults of the prescribers of such. Possibly no preparation is more frequently prescribed than is the compound elixir of pepsin or as the N. F. III named it Compound Digestive Elixir. Listening to the demands of the class of the medical profession, the Committee eliminated this formula from the revision with the result that we have now no legal authority or standard for a preparation that is prescribed to the extent of many thousands of gallons and by a number of physician outnumbering many times those who were so strongly objecting to the retention even of the improved formula which had been proposed and which had actually been adopted. My personal strenuous objection did not prevent the Committee reversing itself. But what is the result? Throughout the country, a preparation used to an enormous extent, is being dispensed without any uniformity of color, taste, odor, alcoholic content or enzymic content. The N. F. has failed to discharge, in this respect, the very duty that called it into existence, and, more seriously, a

legal standard has been destroyed and substandard goods to an enormous extent have since flooded the country. Who is responsible for these errors? Are they not really caused by the failure of physicians to agree?

Regarding the formulas for the elixirs, I quite agree that these are entirely too numerous and that medical practice should be so planned as to eliminate a number, but the physicians here again must decide which they will discontinue to use. The formula for Elixir of Cascara Sagrada has been referred to; this well illustrates a principle which held in the N. F., namely to frame formulas wherever possible to permit of extemporaneous preparation. The formula adopted is simply a mixture of fluidextract and elixir. This simplified manipulation can surely not be considered objectionable and the formula appears to have proven satisfactory and has well served its purpose of supplying a standard formula that will insure uniformity in compounding of prescriptions for this article.

Regarding the basic elixirs of the N. F., the committee had in mind two facts, namely the necessity for many medicaments of reducing the alcoholic content of the diluent or vehicle and that, at times, patients became tired of one flavoring and although a combination like the compound spirit of orange was generally liked at times a change was desirable. For these reasons they proposed several new elixirs which widened the list of vehicular flavors so that the physician could select the most appropriate and varying in alcoholic strength from 5 percent or 10 percent up to 30 percent in the curacao elixir. The value of the weaker alcoholic elixirs like the Compound Elixir of Almond, the Compound Elixir of Cardamom and the Compound Elixir of Vanillin is beginning to be appreciated by the physicians and will in time become more popular.

The question of dosage has been raised and the posology of the N. F. has been criticized. With equal force these comments could have been made applicable to the U. S. P. Following the example of the U. S. P., the N. F. has adopted the plan of stating the average doses. Even the word used "*average dose*" was capable of several constructions. Moreover, physicians, whose special function it has been to determine the official statements regarding dosages, could not agree and many inconsistencies exist in the statements of these in both the U. S. P. and N. F. As a matter of fact, the doses stated in the National Formulary have been supplied by a physician who has rendered this valuable assistance on a purely medical matter to the N. F. Committee.

J. W. ENGLAND. I believe with Dr. Wood that some of the formulas in the National Formulary are therapeutically illy balanced, but their number is small. The book, as a whole, is the result of years of clinical experience by thousands of successful physicians. Like Topsy, many of the formulas "just grew up." They were originally physicians' prescriptions, gradually acquired a local reputation, and then a national one demanding a standard formula. Originating in various sections of the country, formulas of similar compounds were made of a different content of active ingredient in each dose, but such formulas can be readily standardized in the future, now that the National Formulary is a legal authority with standards that can be enforced.

The extent of the use of a drug or drug preparation is, rightly, the acid test as to whether or not it should be officially recognized. A nationally or widely used drug or drug preparation should have a national standard.

The clinician is the man who should say what drugs and drug preparations should be used in medical practice, and he says this through his prescriptions. No stream can rise higher than its source, and the National Formulary should and does most efficiently represent the wishes of the rank and file of the medical profession in this country.

FRANKLIN M. APPLE: At the meeting of the A. Ph. A., held in Detroit, Mich., in 1914, Mr. Beringer in his address as President of the Association, recommended that an epitome of the N. F. IV be prepared, also that a Committee on Propaganda be created to give a great measure of publicity to the new edition of the N. F., especially so to the members of the medical profession.

It is essential to do so as the medical practitioners judge the N. F. IV by their knowledge concerning the N. F. III, which is freely acknowledged to be far inferior to the N. F. IV, which is a book of legal standards that was prepared to meet such application of it. Unfortunately, the treasury of the A. Ph. A. is not overflowing with funds, hence some other source of funds must be sought to carry out the recommendations of Mr. Beringer, which suggestion was finally passed upon favorably at the Atlantic City, N. J., meeting in 1916. This disposition of the matter

was necessitated by the action taken by the Association at its final session at the Detroit, Mich., meeting, where an apparently diplomatic move to dispose of it was taken, with the result that the Council could not make any move to inaugurate a movement to give the publicity of the N. F. IV that its superiority over the N. F. IV warrants.

Possibly the A. M. A. may have facilities at their command which they will offer upon solicitation of the A. Ph. A. officials, whereby the desired publicity for the N. F. IV can be obtained. I make this suggestion for whatsoever merit it may contain.

PRACTICAL DRUG CONSERVATION.*

BY AMBROSE HUNSBERGER.¹

The question of conserving drug store supplies during a national war crisis such as the one through which we are passing at the present time would seem to demand the most profound consideration and unflagging persistence of the practicing pharmacist in its solution. It is peculiarly a problem for the pharmacist, inasmuch as he ought to be in the best position to recognize the limitations which will maintain drug conservation within the bounds of common sense without sacrificing efficiency, and he should further be able, by virtue of his practical experience, to determine the line of least resistance to be followed in order that the most helpful results may be achieved in the shortest possible time.

When we stop to consider the close relationship of the pharmacist with the public, we are readily able to recognize his obligation in that direction, and it becomes apparent that whatever he can do in the way of curtailing the communal encroachments involved in the practice of his calling, should be done without the slightest delay. Of course, the thought suggests itself concerning a reciprocal obligation on the part of the public. If it is not a recognized principle now, it will be, probably soon, that many things which are considered indispensable necessities under normal conditions of living, become distinctly non-essentials, if not positive luxuries, during periods of stress and strife. This principle is quite as applicable to the production of drug supplies as to that of any other commodity consumed by the public, and so applied, means relegating to the back top shelf, for the period of the war, many of the "elegant pharmaceuticals" and nostrums, some of which are said to make therapeutic efficiency a secondary consideration at best. What if the tonic elixir does appeal a little less to the eye, nose, and palate, or the cough syrup is only half as cloyey, or the stomachic loses a part of its alcoholic tang, and the favorite digestant temporarily foregoes its emulation of the far-famed cordial of the Benedictine monks—the esthetic must sacrifice itself on the altar of practicability, and it is reasonable to presume that our loyal public will accept its obligation in the matter of conserving drug supplies, which are difficult to secure, when it is made clear that the heaviest demand upon the restricted substances is created by the effort to appeal to its finicky palate.

As regards the problem before us, it may be said that practical conservation in the drug store includes restriction in the use of many articles which under normal conditions are used in enormous quantities without any special thought being given to the availability of future supplies. A brief list (excluding substances employed

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¹ President Philadelphia Branch A. Ph. A., 1917-1918.

in the manufacture of galenicals) includes bottles, jars, tins, glass and paper boxes, paper and metal caps, extra wrappers, outer cartons, special seals, etc., some of the latter are designed to provide greater security of contents, but perhaps most of them calculated to lend an air of distinctiveness to the package—a commendable procedure normally but one that should be eliminated in war time. Conservation of containers may be practiced by reducing the variety of sizes in bottled or boxed substances, since in most instances the public will adjust itself to a small emergency package intended for immediate use and a larger so-called family size for continuous use. This would do away with the myriad of intermediate-sized packages of household drugs and chemicals, toilet articles, etc., and would release a large volume of paper, glass, and tin containers, allowing the material and labor required in their construction to be used for more urgent purposes. Where is the need of offering cold cream in four sizes, or talcum powder in two sizes of four odors each, or skin lotions and creams in 25 cent, 50 cent, and \$1.00 sizes? Why not, as regards the latter, eliminate the medium size; or still better as a war measure, retain the medium size and release the other two? In other words, instead of applying the old maxim about making "two blades of grass grow where one grew before," reverse its principle and paraphrase it to have "one bottle blown where two were blown before" and apply the principle to each detail of pharmaceutical practice. To be sure, this may not seem to accomplish a great deal in the way of conserving the resources of our country when viewed from the individual standpoint, but if we stop to consider that fifty thousand pharmacists throughout the country can put the plan into operation within a very brief period, the potentialities of the suggestion become more apparent.

While the shortage of materials needed for the manufacture of containers and other drug store accessories is serious in itself, it is second in importance to a consideration of ways and means of curtailing the use of substances which directly affect our supply of food, munitions, and essential medicinal substances. Chief among these may be mentioned alcohol, glycerin, sugar, and certain vegetable drugs and chemicals.

The control of these supplies is perhaps best discussed by a classification of methods, as follows:

Conservation by elimination,

Conservation by substitution,

Conservation by coöperation of medical profession.

In the first classification is included the suggestion above outlined as regards containers, etc., and also certain remarks to follow under the last classification.

Conservation by substitution presents several angles, *viz.*, the substitution of sweetening agents such as honey, glucose, etc., for syrup, and the use of saccharin for the same purpose, and the substitution of glycerin for alcohol, syrup for glycerin, aromatic waters for syrup, etc. The first angle does not appear to accomplish much more than to shift the burden from the right hand to the left, inasmuch as either or all of the substances suggested as sugar substitutes are equally as adaptable to domestic use and should therefore be left available for that purpose. In the second angle it may be said that the judicious substitution of saccharin as a sweetening agent for medicinal substances is perhaps permissible in some instances because this substance is not fitted for indiscriminate use in food products. The third angle of the proposition is discussed later.

Conservation by coöperation of the medical profession appears to offer the solution that promises to achieve the quickest and most beneficial results. Since the art of pharmacy exists primarily for the purpose of supplying the needs of the sick as seen through the eyes of the medical profession, does it not seem feasible and proper to ask coöperation of that body in the campaign for conservation of drug supplies, and can there be a lurking doubt that the coöperation asked for would not be granted, enthusiastically and freely. It is probably safe to assume that the medical profession would welcome any suggestion which might point a way for them to still further advance the interests and safeguard the physical welfare of the citizens of our country.

The best reason for this assumption of coöperation rests upon the fact that the medical profession of our country has outstripped any other single body of citizens in its devotion to our country's cause in the present war. Medical practices developed by years of application, lucrative incomes which they yielded, near realization of ambitions for professional advancement, fond domestic and social ties, assurance of comfortable futures—all were relinquished promptly and unselfishly by thousands of our medical practitioners when the call came and they placed their abilities and energies unreservedly at the disposal of our Government. To make such acknowledgment of the splendidly patriotic attitude of our medical men, in and out of the service, is directly related to our discussion, and were it pure digression, it would still be entirely pardonable because one would have to be churlish, indeed, to have enjoyed the cordial friendship of many of these manly men and fail to fully and freely commend the fine quality of their citizenship.

Assuming, then, the patriotic coöperation and receptive attitude of the medical practitioners of the United States in the matter of conservation, it becomes incumbent upon the pharmacist to furnish the information that comes to him in his daily practice regarding fluctuations in supplies and prices of drugs, to direct attention to declining stocks of certain ones and the possibly increasing supplies of others previously curtailed, to discuss tested substitute products for those unavailable as well as for those which, by virtue of controlled supplies achieve extortionate, if not, prohibitive prices, to advocate reductions in the size of prescriptions calling for scarce drug and chemical products and to encourage curtailment and, whenever possible, entire elimination from prescriptions of such ingredients as syrup, glycerin, and alcohol, singly or in combination, when they serve no more laudable purpose than an appeal to a frivolous or jaded palate.

Personal experiences furnish concrete examples of the practical results which may be obtained through intelligent and (in these times) patriotic coöperation between physician and pharmacist. For years a well-known oculist ordered one grain of his favorite mydriatic in a fluidrachm of distilled water. When informed that supplies of the substance were running low and the cost mounting high, he changed his formula to one-third grain mydriatic in twenty minims of distilled water, with entire satisfaction to himself and his patients and proud of his achievement in conserving two-thirds of his normal consumption of a rare chemical. Another practitioner was in the habit of prescribing from four to six ounces of compound tincture of benzoin, with the directions to the patient to "add two teaspoonfuls to a pint of boiling water and inhale the steam." When informed of the difficulty involved in procuring cer-

tain ingredients contained in this preparation, he reduced his order to *one* ounce of tincture with directions to "add *fifteen* drops to *one* cup of boiling water."

Another changed his favorite combination of ammonium chloride and syrup of lactnecarium to one containing an equal dose of the active ingredient in a vehicle consisting of one part syrup and three parts anise water, with no noticeable sacrifice of therapeutic efficiency, according to his statement. Still another has been securing results with a capsule of terpin hydrate and heroin that are quite comparable with those he formerly observed when using the elixir containing the same substances. He is justly proud of the fact that he is a practical conservationist, and the available supply of alcohol, glycerin, and sugar, is automatically maintained.

A final reference to the ready compliance of still another practitioner with the suggestion that an ointment used in rather generous quantity might serve equally well as a protective coating if petrolatum were employed as a vehicle in place of benzoinated lard, points the way to conservation of animal fats.

It is said to be difficult indeed, to attempt to measure the relative difference in therapeutic value between a dose of terpin hydrate and heroin administered in pill, powder, or capsule form, and a dose of the same substance administered in the vehicle provided in the formula for Elixir Terpin Hydrate and Heroin, and it would seem to require equal temerity to attempt to demonstrate that ammonium chloride was any less effective as an expectorant given in cinnamon water than it is when dissolved in syrup of lactucarium, or that pepsin extemporaneously dissolved in compound infusion of gentian lacked any of the digestant qualities ostensibly possessed by the same substance when exhibited in more delectable vehicles. Indeed, the deeper one delves into the question of conservation in the drug store, the more one is inclined to the thought that, while upon the surface the necessity for conserving certain supplies may require more or less readjustment, as a matter of fact, rational therapeutics properly supported by rational pharmaceutical practice, to a great extent solves the problem, and if the rational practice of these two arts shall become a fixed habit, the national emergency that actuated the readjustment will have been, indeed, a blessing in disguise to the practice of pharmacy.

While it is perhaps true that all medical practitioners will not receive this method of applied drug conservation with enthusiasm, or even with cordiality, it is probably a fact nevertheless that an inestimably greater number will be governed by the need of the hour and welcome this additional opportunity to promote the interests of our country by assisting in the conservation of its resources as far as lies in their power.

Space does not permit a systematic arrangement of the most prescribed substances but a suggestion as to the possibilities involved is obtained by a brief reference to but a few classes of substances, with conservation forms of administration.

Salts of ammonium, potassium, sodium, calcium, strontium can be dispensed in aromatic waters, with or without the addition of from 10 to 25 percent of syrup. Salts of mercury, strychnine, etc., opium and alkaloids, etc., can be dispensed in pill or capsule form; cinchona alkaloids, etc., in capsule pill or wafer; digestive agents in powder or capsule; vegetable drugs, in capsule, powder, pill, or infusion; antipyretics (coal tar) in capsule, powder, or wafer.

This brief scheme is, of course, susceptible of unlimited extension and numberless variations, and from that standpoint may be criticized as being cumbersome and complex. The fact is, however, that the individual medical practitioner is interested only in the remedial agents which he is in the habit of prescribing, and the facility with which he will master a system which will eliminate the restricted substances from his prescription will be governed by his interest in the matter. It is not to be gainsaid that here and there substances exist which, by virtue of their physieal characteristics, render imperative the use of alcohol or glycerin in their preparation for use, or the addition of sugar to facilitate administration; but their number is negligible and the quantity of the above-mentioned substances can probably be spared to that extent for pharmaceutical purposes. Under any plan of conservation a portion of these substances will have to be retained for certain pharmaceutical uses, such as solvents, preservatives, etc., if the practice of pharmacy is to continue throughout the war; and the pharmacist's title to this portion is less likely to be questioned if he limits his requirements thereto and refrains from encroaching upon the domestic domain for substitute sweetening agents such as honey, molasses, glucose, etc. It is among the possibilities that domestic need for the latter may even become acute, pending the termination of the war.

The foregoing thought suggests the chief objection to be found with the proposed plan of conserving drug supplies by adopting War Emergency Formulas to be used in place of our official standards. Many of the suggested substitute formulas provide for the use of substances which are no more plentiful nor any less in demand than are the articles they are designed to replace. This plan of conservation seems therefore to be not altogether an unselfish one. The second objection to War Emergency Formulas lies in the cumbersome nature of the plan and the endless complications likely to result from extemporaneous prescription combinations of these more or less untried formulas. The final count against the plan is the fact that if it is to be successfully operated, precisely the same effort will be needed to enlist medical coöperation as in the writer's plan, without securing nearly as beneficial results.

As a concrete example of the potentialities of the conservation plan proposed by the writer, Elixir Terpin Hydrate serves well. Only one four-ounce prescription for this preparation dispensed in each drug store in the United States consumes between seven and eight hundred gallons of alcohol, more than three tons of glycerin, and about one ton of syrup. If the active ingredient of the preparation, terpin hydrate, is administered according to the writer's suggestion, in powder, pill, or capsule form, there is saved to the country a volume of the ingredients composing the elixir proportionate to the number of prescriptions so changed. And therein lies the principle of conservation by coöperation with the medical profession. It presents an obligation for rational pharmacy and therapy. How shall the obligation be met?

WAR EMERGENCY FORMULA FOR SODA FOUNTAIN SYRUP.

BY F. A. UPSHER SMITH.

Although, by taking care, a very large amount of sugar now used in medicines can be saved, a moment's consideration will show that a still greater amount of sugar can be saved at the soda fountain. Without having accurate figures to go by, I should estimate that there are in this country three times as many soda fountains as there are drug stores. On this estimate there are over one hundred thousand soda fountains in the country, and if each one used three pounds of sugar a day, the annual consumption of sugar at the soda fountains would be over one hundred million pounds.

The question is, to what extent can we replace part of this sugar by glucose? I have prepared the following formula for the soda fountain and up to the present have found that it makes a very palatable drink with the various fruit flavors, chocolate, maple, etc.:

Granulated Sugar..... $4\frac{1}{4}$ pounds
 Liquid Glucose..... $2\frac{3}{4}$ pounds (or 1 quart)
 Distilled Water.....sufficient to make one gallon

Mix in pan, raise to the boiling point, stir until properly mixed, then strain into a bottle; when cold, cork and keep in a cool place.

The specific gravity of this syrup is 1.291. It is, therefore, lighter than U. S. P. syrup and is less sweet. But soda fountain syrups have always been made extremely sweet, if not too sweet, and it is possible, after a time, that a less sweet syrup will be more in favor through the gradual weaning of the people from their previous use of an excess of sugar.

It is impossible to say at this time what will be the keeping properties of this syrup; as far as I can judge, it will not keep so well as the official syrup. On this account it would be well, in trying it out, to make only sufficient for a few days, at the most for one week at a time, until its keeping properties have been well tried out.

This formula, as it stands, will save 44 percent of the sugar used at soda fountains, substituting for it a sweetening substance which has already been very largely used in candies and which in recent months has been used to a greater extent than formerly in the manufacture of ice cream.

It would not seem objectionable from any point of view to use glucose, because ordinary cane sugar when ingested passes through the glucose stage in the stomach before it is assimilated.

It is desirable that this formula be tried thoroughly in a small way in a large number of soda fountains so that the experience of many may help to improve it. At a time like this when sugar is admittedly scarce and when the homes are being denied their usual allowance of sugar, the soda fountain proprietors of this country are in a position to be of direct assistance to the whole population as well as to our Allies.

Now is the time to act. Try out this formula, improve it if you can, and do your best to use as little cane or beet sugar as possible at the soda fountain during the remainder of the war.

Do not put off a trial of this formula. Act now. If you do not, you are not a true patriot.

PARAFFIN FILMS AND OIL DRESSINGS.*

BY WILLIAM J. BONISTEEL.

The war has brought out a number of new things which are of great interest to pharmacists. The value of the Carrel-Dakin solution is well known while the new method of treatment of burns by paraffin films and oil dressings is not so generally known. The history of paraffin films no doubt dates back to the first use of carron oil for burns. We know that in this treatment the action and principle is superficial, merely keeping the affected parts free from direct contact with the air. Recently it has been found that a similar action is obtained through the use of thin films of paraffin which, when applied to the skin, offer the maximum of protection to the burned areas or exposed tissues. In addition to protecting the skin the use of paraffin films offers certain other advantages, *viz.*, ease of removal as well as acting as a sort of scaffolding for feeble granulations.

Recently there has appeared on American markets a French preparation, called "Ambrine," of secret composition. Some very sensational reports have been circulated relative to its marvelous properties. In this country, as was to be expected, certain proprietary preparations of secret composition have also appeared upon the market, all more or less alike in composition and the principle of action the same. If the principle of the films is a good one, the question arises: are the above named preparations the best? Being of secret composition we know of no place to start to improve them. Therefore we have to start in with paraffin and work on them as we go along.

The object of this paper is to show the method of manufacture and the simplicity with which they may be employed. The most important work in this country on the paraffin films is the work of Dr. Torald Sollmann,¹ of Western Reserve University, who has carefully investigated the subject and reported his results. The films should be simple and consist at most of not more than two ingredients so they can be prepared independently and if possible extemporaneously by any pharmacist and thus be available to any physician or surgeon who cares to try them. In working with films experimentally it is advisable to refrain from adding any deodorant, antiseptic or coloring matter since the first step should be the suitability from a mechanical standpoint. After suitable types are found then it is an easy matter to modify them by such additions as one deems necessary.

The melting point of paraffin films should not be lower than 48° C. nor more than 53° C. Within this range the melting point is immaterial, it being well to bear in mind that the harder the wax the more firm the support, while the softer ones are more soothing. The ductility or resistance of a film against stretching may be determined by comparative tests. Pliability or resistance to fracture on bending is important also. The more fragile films will break at a relatively high temperature while the more plastic films can be bent at a relatively low temperature.

General methods of preparation: Paraffin alone is seldom used since it easily crumbles. Mixtures of paraffin and related mixtures are generally used. Such

* Read before the joint meeting of the Detroit Branch of the American Pharmaceutical Association and the Prescott Club of the College of Pharmacy of the University of Michigan, February 14, 1918.

¹ See June 1917, issue, p. 555.

substances have the property of giving the film their elasticity and durability. The mixtures are prepared by melting the ingredients on a water bath, after which the mixtures are heated to 145°C . for sterilization. After the preparations are melted on a water bath a teaspoonful of melted wax can be poured upon the surface of water at the temperature of about 40°C . This makes very satisfactory films suitable for small area. For larger sheets a piece of plate glass can be used which has been warmed in a water bath to a temperature of about 40°C ., then melted paraffin is poured on the glass and spread with a hot spatula, then immersing the plate immediately into water at a temperature of about 40°C ., the film softens and then can be lifted off with a spatula. However, any method that will yield satisfactory films can be employed.

The melting-point determination can be carried on by the U. S. P. method or any other melting-point method which yields satisfactory results. Hardness can be determined by a comparative method, *viz.*, by seeing which cake will indent the other. The strength can be determined by immersing them in a water bath of 38°C ., kneading and pulling, noting their coherence, etc. The temperature at which the film breaks can be determined by the same method. At high temperatures the films can be doubled without breaking. This temperature varies for different films. The lower the temperature at which the film begins to break on bending or pulling the greater is the pliability or ductility. It is quite desirable that the film should have a low melting point and thus remain pliable at a low temperature. Clinical trials will introduce new conditions so that the usefulness of the various preparations cannot be judged altogether from physical results. The cost is relatively low. Paraffin, the main ingredient, is at present about 20 cents a pound. Dr. Sollman has made a very extensive classification and divided them into five large classes arranged in the order of hardness, giving a number of formulas under each class in the order of preference. However, for this paper I will take but one of each class.

Class 1.—Simple paraffin. Any suitable brand on the market will do, the softer varieties being preferred. It would be well to experiment with many of the makes on the market. The membranes detach beautifully and it seems very promising, except that it is very brittle and crumbles easily. This should be used where a very stiff film is desired.

Class 2.—Paraffin wax and related mixtures, consisting of about 90 percent of paraffin and the balance can consist of resin, spermaceti and stearic acid. The proprietary mixtures usually belong to this class.

Class 3.—Paraffin-asphaltum mixtures. These are more pliable, more adhesive, and can be made into thinner films. Whether advantageous or not is open to question. Paraffin and asphalt do not form perfect mixtures, hence must be stirred. Ten percent of asphalt varnish is mixed with the paraffin but since the composition of asphalt is complex no further experiments were made.

Class 4. These are paraffin oil mixtures and the most promising is the mixture with the addition of 10 percent oil of theobroma. Then comes liquid petroleum and olive oil. Venice turpentine and castor oil do not seem to yield good films, although their application might be desirable. As high as 20 percent of cacao butter and the same percent of olive oil is mixed with paraffin. These films

being somewhat emolient, would be perhaps desirable in the early stages of treatment.

Class 5.—Paraffin and petrolatum mixtures. They are somewhat different, being very soft, greasy and crumble easily. Ten parts of paraffin and two parts of petrolatum form weak but manageable films. On very sensitive surfaces this might be desirable.

Application to the skin: The series of preparations were applied to the skin in the same manner in which they would be used clinically. A strip of skin about an inch wide was painted with the melted wax, on this was laid a very thin layer of cotton, and over this was painted another layer of the wax. The adjacent strip of the skin is now painted with the second preparation, and so on. This is a very suitable method for clinical comparisons. However, in actual practice the whole area is covered with the melted paraffin and covered with a thin layer of cotton and then more melted wax is added.

The preparation and properties of paraffin film mixtures suggests their most important properties from a therapeutic standpoint. Several degrees of hardness might possess advantages under various conditions. Pharmacists should call to the attention of the physician this method of treatment and urge him to use simple preparations of known composition so that results can be compared, deficiencies met and improvement made. Clinical experiences may show the advantages of the addition of simple combinations such as scarlet red, resorcin, eucalyptol, and other healing essential oils.

In the same field of paraffin films comes up the question of the use of paraffin oil on surgical dressings. These are prepared by saturating the gauze with a soft paraffin mixture made by the addition of liquid petroleum, lanolin or stearic acid to paraffin. Perhaps the best results that are on record are obtained by the use of liquid petroleum. The great advantage of a non-adhering surgical gauze is due to the fact that the blocking of the fibers prevents matting from secretion and the non-adherence of the gauze. These gauzes can be easily prepared and can be sterilized with heat after impregnation.

This same principle can be used to make cotton sponges. Demonstration shows that cotton sponges wrapped in oiled gauze absorb viscous fluids much better than when wrapped in plain gauze. The technic of making of absorption tests is as follows: One gramme absorbent cotton as a sponge is wrapped in a piece of gauze 12 cm. square; egg white and egg yolk were used to represent wound discharges. This is placed in a flat bottom pan to a depth of 2 to 3 mm. and in this were placed the sponges previously weighed. Results can be recorded upon a chart and the number of grammes absorbed recorded. The result of a few summaries from a chart based on the above technic is as follows:

1—Sponges made of compressed cotton (cotton can be easily compressed in a letter press) absorb much better than those made of loose cotton.

2—Sponges wrapped in loose-mesh fabric absorb better than those in close-mesh fabric.

3—Sponges covered with gauze impregnated with liquid petroleum absorb better than those with plain gauze.

4—Sponges with cotton absorb better than those filled with powdered charcoal.

The most favorable influence of the oil gauze is explained by the protection that the oil furnishes against swelling of the thread and the consequent obstruction of the mesh.

The above uses of paraffin immediately suggest its use as a covering for bandages. The bandages can be dipped in melted paraffin and applied directly to the wound, this being somewhat analogous to a paraffin film although it differs in some essential respects. The finished dressings can be painted with melted paraffin, the bandages stiffened so as to form a support and this in some cases may take the place of a splint or even a cast. However, it is somewhat weaker and more pliable but has the advantage of lightness. The edges of dressings can be painted with melted paraffin so that bandages do not slide upon themselves. Moisture and dirt are kept out. The fraying that one notices on bandages after being worn a little while can be prevented by coating the edges with paraffin. These bandages can be easily removed with the scissors. The end of a bandage can be sealed by paraffin, doing away with the use of adhesive plaster. Countless other uses can be made of paraffin, such as the coating of labels on bottles. It is hoped that the ideas set forth here will be of service to pharmacists in presenting new ideas to the medical profession and at the same time be a source of revenue to them, not only from a financial standpoint but from the added prestige gained through presenting something to aid suffering humanity in general.

DR. FRANK CRANE'S COMMANDMENTS OF SALESMANSHIP.

9. Think Success.—Success begins in the mind. Why think fifty cents, when it is just as easy to think fifty dollars? Tell success stories, not incidents of failure and hard luck. Radiate prosperity. Feel prosperous. It's catching. Keep your chin up.

10. Be Human.—The reason you are hired to sell goods is that you are a human being. Otherwise your employer would have sent a catalogue. So be a human being, likable, engaging, full of human electricity. For I patronize as a rule the salesman I like.

Selling goods is the greatest business in the world. It takes all there is in a man. You need to know psychology, you need tact, intelligence, self-control, courage, persistence and inexhaustible good humor. It is not a job for a second rater. You simply have to make good or go under.

I admire a good salesman because I never was able to sell anything in my life. But I'm a good buyer.—Dr. Frank Crane.

PRESCRIPTION CLINIC.*

SHOWING SOME INCOMPATIBLE AND SOME UNUSUAL PRESCRIPTIONS.

BY CHARLES H. LAWALL AND IVOR GRIFFITH.

| | | |
|-----|---------------------|----------------|
| (1) | Sodium Borate..... | 1½ drachms |
| | Acid Salicylic..... | 1 drachm |
| | Glycerin..... | 10 fluidrachms |
| | Syrup to make..... | 4 fluidounces |

No matter how this prescription is compounded a chemical change is bound to occur between the sodium borate and the glycerin with the formation of boric acid and sodium metaborate, both of which would be soluble in the menstruum of glycerin and syrup. This reaction is stated to be progressive but is hastened when heat is used in the manipulation.

The thoughtless way of compounding this prescription would be to triturate the solids with the glycerin and add the syrup and dispense the mixture with a "shake well" label disregarding the floating needles of undissolved acid. Two ways of compounding this prescription suggest themselves to us:

In the first, salicylic acid is dissolved in a very small volume of alcohol and the borax is dissolved in the warmed glycerin. The two solutions are mixed and the syrup then added. A perfectly clear solution results.

The other method is to dissolve the salicylic acid in 5 fluidrachms of the glycerin, heated on a water bath and the borax in the rest of the glycerin, also heated. These two solutions are mixed and enough syrup added to measure 4 fluidounces. Both methods produce apparently permanent solutions.

| | | |
|-----|-------------------------|----|
| (2) | Quinine Bisulphate..... | 2 |
| | Phenol..... | 1 |
| | Glycerin..... | 4 |
| | Distilled Water..... | 60 |

Compounded in any manner, strictly according to this formula, a crystalline precipitate is bound to occur after the product has stood a while. This precipitate or rather tufted masses of crystals, on examination, proved to be alkaloidal quinine.

The addition of an excess of an acid which gives soluble salts of quinine, prevents the formation of this precipitate. Lactic acid which lately has been frequently and successfully used in the treatment of seborrhoea seems the logical one to use. Addition of this acid inhibits the production of a precipitate, and while no trial was made with the substitution of dilute alcohol for the distilled water, such a change, it would seem, would also prevent this precipitation.

| | | |
|-----|----------------------------------------|---------------|
| (3) | Sodium Nitrite..... | 20 grains |
| | Sodium Citrate..... | |
| | Sodium Bromide..... of each | 2 drachms |
| | Compound Digestive Elixir..... to make | 3 fluidounces |

* Presented before Section on Practical Pharmacy and Dispensing, Indianapolis meeting, 1917. Most of the prescriptions were further discussed by the authors, and also by E. A. Rudiman, W. H. Glover, C. P. Wimmer, L. C. Hopp, Carl Whorton, Louis Saalbach, Frank Schachleiter and R. W. Terry.

Every combination was tried in order to hasten the reaction which occurs in the compounding of this prescription. Effervescence does not totally cease for from 36 to 48 hours. Tests of the mixture after it had stood several days proved the presence of a nitrate, non volatile and volatile nitrites and the turbidity of the product was due to the salting out of the digestive ferments in the elixir.

There is no way, within our ken, of overcoming the incompatibility of this prescription.

| | | |
|-----|------------------------------|---------------|
| (4) | Sodium Salicylate..... | 2 drachms |
| | Hexam..... | 1 drachm |
| | Spirit of Nitrous Ether..... | 2 fluidrachms |
| | Water..... to make | 2 fluidounces |

When this prescription is filled, contrary to expectation, it develops a peculiar brownish black coloration which deepens perceptibly on standing. If the spirit is decidedly acid one may look for crystals of salicylic acid in the mixture. This could probably be overcome by neutralizing the spirit. Another possibility is that nitrosalicylic acid may be formed in the mixture. The hexamethylenamine is apparently unaltered unless such a change will occur after the mixture has stood a while. We have not been able to determine the cause of this development of color.

| | | |
|-----|----------------------------------------|------|
| (5) | Theobromine and Sodium Salicylate..... | 2 |
| | Sodium Iodide..... | 4 |
| | Corrosive Mercuric Chloride..... | 0.65 |
| | Distilled Water..... | 60 |

Snap judgment in this particular case is liable to lead one astray. The sodio-mercuric iodide formed in the prescription, presumably should, like Mayer's reagent precipitate alkaloids. We are taught however that the dimethylxanthine group, consisting of caffeine, theobromine, and others, are not precipitated by this reagent. Acting on this presumption we accordingly fill this prescription and send it out a clear transparent solution. It is brought back in a day with a white precipitate. This precipitate contains theobromine and mercury. Caffeine citrate in the same combination gives no precipitate. Perhaps we have discovered a new differentiating test between caffeine and theobromine, we shall pursue this subject further but give the example as a warning.

| | | |
|-----|------------------------------|------------|
| (6) | Quinine Sulphate..... | 1 |
| | Potassium Acetate..... | 6 |
| | Aromatic Sulphuric Acid..... | sufficient |
| | Syrup of Lemon..... to make | 90 |

The potassium acetate is quickly dissolved in one-half of the syrup. The quinine sulphate, with the aid of a few drops of the acid is dissolved in the rest of the syrup and the two solutions are mixed. The result is a heavy, bulky precipitate of quinine acetate.

This prescription was compounded in this way, in a certain drug store, and the patient returned it with a request that it be transferred to an ointment box, so that it could be administered with less trouble.

Using simple elixir in place of syrup of lemon modifies the difficulty somewhat, although it does not correct it altogether.

- (7) Thymol Iodide..... $\frac{1}{2}$ drachm
 Wool Fat..... $\frac{1}{2}$ ounce
 Cottonseed Oil..... to make 6 fluidounces

This is a favorite prescription with an eminent Philadelphia physician. He reports several "messes" as the result of careless and thoughtless filling of this recipe.

The proper way and a way that is always productive of perfect admixture is to dissolve the thymol iodide in part of the oil and the melted wool fat in another portion. When the latter is cool the two solutions are mixed and the preparation thoroughly shaken. It does not produce a perfect solution.

- (8) Strychnine Sulphate..... $\frac{1}{2}$ grain
 Tincture of Digitalis.....
 Tincture of Strophanthus..... of each $\frac{1}{2}$ fluidounce

A turbidity at first, and afterwards a precipitate appears on compounding this prescription. Using a fat-free tincture of digitalis avoids this complication to a certain extent.

- (9) Glycerin.....
 Solution of Hydrogen Dioxide..... of each 2 fluidounces

It was recently stated in one of the drug journals that this combination on standing a few days, developed oxalic acid, that is, the glycerin was oxidized by the dioxide. As a matter of fact the solution which was on exhibition was made some five or six months ago and when tested recently showed no evidence whatever of oxalic acid. Assay developed the fact that the peroxide in the solution still retained its full volume of available oxygen. This is another evidence of what is too often seen in the way of criticism. The graphitic cellulose method of criticising prescriptions is a very unsafe way to attain accurate results.

- (10) Sodium Bromide..... 4 drachms
 Elixir of Pepsin and Rennin Compound
 to make..... 2 fluidounces

After standing a few hours a peculiar turbidity manifested itself in the solution, later depositing as a slimy, gelatinous precipitate. This was probably the rennin and pepsin with impurities salted out by the sodium bromide. The addition of an acid did nothing to prevent this precipitation. As a matter of fact the addition of an excess of ammonia water was the only way whereby the precipitate could be redissolved; and this being destructive of the enzymic action would be impermissible.

It is only the unsightly appearance of the product of the prescription that calls for comment, since it can well be dispensed as it is with a "shake-well" label.

- (11) Acetphenetidin..... 10 grains
 Quinine Sulphate..... 20 grains
 Aromatic Sulphuric Acid sufficient
 Syrup of Citric Acid or,
 Aromatic Elixir to make 2 fluidounces

There is no incompatibility in this prescription. Notice however is to be taken of the fact that the marked fluorescence which is usually exhibited in this acid solution of the quinine salt is practically absent here. For some peculiar reason acetphenetidin prevents the occurrence of this phenomenon.

| | | |
|------|--------------------------|---------------|
| (12) | Aspirin..... | 1 drachm |
| | Potassium Iodide..... | 1 drachm |
| | Glycerin | 4 fluidrachms |
| | Anise Water..... to make | 4 fluidounces |

As one would suspect there is a fairly quick dissociation of the acid radicals of the aspirin in the product of this prescription due of course to hydrolysis. The aspirin loses its identity breaking up into acetic and salicylic acids, the presence of both of which was proven. The fine display of crystals exhibited in the one product as well as the grape-like form of precipitate shown in the other bottle are salicylic acid. Acetic acid and free iodine are present in the supernatant fluid.

| | | |
|------|------------------------------|---------------|
| (13) | Potassium Permanganate..... | 20 grains |
| | Phenol..... | 20 grains |
| | Glycerin..... | 4 drachms |
| | Distilled Water..... to make | 2 fluidounces |

Potassium permanganate in the presence of glycerin is immediately reduced to the black oxide of manganese and oxygen is liberated. This nascent oxygen will bring about a change in the composition of the glycerin and the phenol. This change, however, is probably very slow and need not be considered since there is no way of filling this prescription without bringing about the chemical change mentioned. It presents a clear case of an incorrigible incompatibility.

| | | |
|------|------------------------------|---------------|
| (14) | Quinine Sulphate..... | 15 grains |
| | Sodium Benzoate..... | 2 drachms |
| | Distilled Water..... to make | 3 fluidounces |

In the consideration of the proper means of filling this prescription, the use of an acid to assist in the solution of the alkaloidal salt is prohibited since such an addition would only create a new difficulty, that is, the releasing of the insoluble benzoic acid from its combination.

In attempting to fill the prescription we dissolve the benzoate in one fluidounce of water and the quinine salt as nearly as possible in the rest of the water. The two portions were then mixed. The result was the precipitation of the very bright crystal masses of quinine benzoate. The filled prescription reminds one very much of the old time miniature snow storm scene enclosed in a sealed glass bulb that aroused our curiosity in our younger days.

| | | |
|------|------------------------------------------|---------------|
| (15) | Sodium Benzoate..... | 3 drachms |
| | Solution of Calcium Hydroxide... to make | 4 fluidounces |

Precipitation of the slightly soluble calcium benzoate occurs here and is intensified somewhat the longer the bottle is allowed to stand. There is no way of overcoming this without an impermissible change in the formula. It can be dispensed with a "shake-well" label.

| | | |
|------|------------------------------|-------------------|
| (16) | Strontium Bromide..... | |
| | Potassium Citrate | of each 2 drachms |
| | Distilled Water..... to make | 2 fluidounces |

Quite a peculiar phenomenon occurs here. Dissolving the strontium bromide in a fluidounce of the water and the potassium salt in the rest of the water, then mixing the two solutions produces a precipitate which soon disappears. Shaking the bottle brings it back immediately and on standing a while the prescription looks

more like milk of magnesia than anything else. The insoluble precipitate of course is strontium citrate.

| | | |
|------|-----------------------|-------------------------|
| (17) | Menthol..... | 8 grains |
| | Quinine Sulphate..... | 20 grains |
| | Phenol..... | 24 grains |
| | Ichthyol..... | 2 $\frac{1}{2}$ drachms |
| | Hydrous Wool Fat..... | 4 drachms |
| | Castor Oil..... | 10 fluidrachms |

This prescription is reported to have given various results in the hands of different compounders and one will not be surprised at this. As the formula stands we can conceive of no way of making a permanently presentable and smooth product.

Substituting 15 grains of alkaloidal quinine for the salt and melting this with the menthol, phenol and ichthyol and incorporating this mixture with the solution of anhydrous (not the hydrous) wool fat in the warmed castor oil gives a permanently presentable and non-granular creamy liquid.

DISCUSSION OF OTHER PRESCRIPTION AND MANUFACTURING PROBLEMS.

The spare moments of the Section on Practical Pharmacy and Dispensing were given over to discussions relating to practical pharmacy:

ENTERIC PILL COATING AND CAPSULES.

W. L. SCOVILLE: An enteric coating for pills must be insoluble in the stomach and soluble in the intestines. Salol would be the ideal coating for this purpose, if it could be applied in an amorphous condition, but as the solvent gets in between the crystals of the salol there is no certainty that the pill will pass the stomach intact.

WILLIAM GRAY: We have never found a better coating than salol, but as Professor Scoville states this is not always satisfactory.

W. L. SCOVILLE: I carried on quite a series of experiments on gelatine capsules treated with formaldehyde several years ago. I found this: that if you take a one percent solution of formaldehyde, and dip the capsules, let them stay in this solution for not more than thirty seconds, take them right out and drain them and dry them, you have a condition that after about two weeks the gelatine has an enteric property; that is, it is insoluble in acid but is soluble in five-tenths percent solution of sodium carbonate. All experiments were carried out at a temperature of 37.5° C., at which they will dissolve readily in an alkaline solution. It looked very promising. I kept them for a year or two years. I tested them every three months, and while they dissolved up nicely in alkali, they refused to go to pieces in acid. They would swell but they would not dissolve. After a year and a half I began to find that the solubility in the alkali was decreasing. In other words, the process seemed to be progressive. The reaction, whatever it is, whether it is physical or chemical, in gelatine, goes on; keeps on increasing. At first it is very weak, and the capsules were not fit to be used for two weeks. Then they were all right for a year. We have used that process at the laboratory for experimental purposes—that is, where we could control it ourselves for enteric experiments.

By the way, Mr. Gray just asked me about using ipecac internally. I would like to state that if he wants to put ipecac in capsules and treat them that way, do not use them for a month, and then see that they are all used within a year, you will then get as good results as you can with anything. In hospital work that is thoroughly practical, but not for commercial work; it is unsafe to place a product of this kind on the market that is only good for a limited time.

PHARMACOPOEIAL AND NATIONAL FORMULARY PREPARATIONS.

R. W. TERRY: About a year ago I prepared some Compound Tincture of Cudbear; recently I had occasion to use some and found the caramel had separated out.

W. H. GLOVER: My experience with caramel of the market is unsatisfactory, hence I prepare it myself and do not experience the trouble indicated by Mr. Terry.

LOUIS SAALBACH: Much of the commercial caramel is not made from sugar but starch. (See p. 495 Vol. III and p. 1510 Vol. IV, JOURNAL A. PH. A.—Editor.)

CHARLES H. LAWALL: I use sodium carbonate in making caramel from glucose.

C. M. SNOW: We have had some trouble in the manufacture of Liquid Petroxolin, but we overcame the trouble by proper heating in a water-bath instead of on a water-bath.

W. H. GLOVER: In making Iodine Petroxolin formerly I found that after standing there would be a separation. I overcame this by using Russian oil.

C. P. WIMMER: Soft Soap, as now made is no longer green, and we have had some difficulty in making a satisfactory product by using the present formula.

LOUIS SAALBACH: I heard of an experience with soft soap which may be of interest. In making it according to the formula and following the directions as printed: "Dissolve 86 Gm. of potassium hydroxide in 100 mls of water in a capacious dish by the aid of heat. Immediately add 430 Gm. of cottonseed oil to the solution, and stir the mixture actively for a few moments. Then reapply the heat and, at first evidence of froth from boiling pour in 50 mls of alcohol, stir actively until the froth suddenly rises;" the mixture took fire and burned the operator who had followed these directions. My experience with this formula is not satisfactory. (Similar expressions came from W. H. Glover, C. P. Wimmer and C. M. Snow.)

C. L. EDDY: The Compound Solution of Phosphates formula calls for more than 1000 mls.

C. M. SNOW: This evidently is an error in the formula and the volume of water should be reduced.

(A discussion of Elixir of Gentian concluded the session. The point discussed was relative to the amount of Compound Spirit of Cardamom in the preparation which nearly all considered excessive.)

CATALYSIS.

D. W. Horn, in the Transactions of the Wagner Free Institute of Philadelphia, Volume VIII, p. 97, states that "contact underlies chemistry." He continues in saying, "Bodies may influence each other at almost incredible distances, but this action is physical, not chemical. Briefly, no contact, no chemical action. In the time-honored generalizations, of chemistry, its 'fundamental laws,' the action of pure substances upon each other was considered without reference to the effects of adjacent bodies. In some few instances, however, the effects of adjacent bodies were so striking as to compel early attention. Until recent years the multiplication of such instances has been slow. Such action or influence of an adjacent body may be covered by the term 'catalysis,' introduced by Berzelius, the famous Swedish chemist, in 1834.

"In 1836, Berzelius compiled all cases known in which, by the presence of a foreign body, a chemical reaction is hastened without the foreign body itself being changed. These foreign bodies thus acting he called 'catalysts.' Historically, catalysis is not a new phenomenon. Processes of fermentation were known to the ancients, and these involve catalysts. In fermentation by yeast, the yeast plant produces the catalyst, or enzyme, as it is more frequently called. In sharp contrast with chemical reactions that, when not catalyzed, proceed at so slow a rate as to produce less than

noticeable amounts of products, stand the reactions that are so rapid as to be practically instantaneous. Catalysis, of course, is not concerned with such reactions.

"It is not strictly true that a catalyst is found to be *unchanged* at the end of a catalyzed reaction. It is correct to say that the final products are the same, as they would have been had the catalyst been absent. The catalyst may be rather unmistakably changed, not in amount, but in physical state. Thus the crystalline manganese dioxide used to generate oxygen from potassium chlorate becomes a fine powder, and changes in physical state are known to occur in iron oxide and in platinum used as catalysts in other systems. The amount of the catalyst, no matter how small, seems to remain unchanged. Catalysts themselves may be accelerated or restrained in their rapidity of action. Two catalysts usually have a greater joint effect than either would have singly. 'Promoters' that increase the activity of catalysts are also known. Some substances so completely obstruct the action of catalysts that they have been called 'Poisons.' Enzymes and toxins have their poisons and antitoxins, and the analogy to them is quite close, even in the case of metallic catalysts. Some catalysts seem specific for a given reaction, but many are capable of manifold application, and no general method is known for guidance in selecting a catalyst for a given reaction."

SECTION ON EDUCATION AND LEGISLATION

AMERICAN PHARMACY.*

BY C. T. P. FENNEL.

Every true student of nature believes in a Divine Providence and in his precepts. Human nature as well as mundane have not changed since creation. Virtue and vice, with all the passions engendered by environment, remain as in the beginning and will remain the same to time everlasting. Natural forces determine the essential facts of history. Men of vision may show the way in which these forces are to express themselves, "As you sow the seed, so will you reap."

Let us keep this truism in mind and review our past history. The factors that enter into our discussion are many and are embodied in the great law of nature, the division of labor. Pharmacy and its followers, the colleges, law, associations, boards of pharmacy, the manufacturer, our national standard and the public, all contribute to this national institution, American Pharmacy.

Born and raised in an atmosphere of pharmaceutical endeavor with thirty odd years of experience in the business combined with my modest but sincere efforts in pharmaceutic training justify the privilege of expressing an opinion upon a subject which is touching the vanity of the American pharmacist.

First of all, let us not blind ourselves to facts, let us be honest with ourselves, the public and the Government. Claims of intellectual superiority for our calling avail us nothing. Efficiency must be proven. Can we do so? Are we entitled to recognition in the management of governmental affairs or not? Can we give force to the will, efficiency, courage and capacity to far-reaching plans?

What took place in Cincinnati seventy-five years ago, repeats itself in other centers of activity. Local activity becomes regional and finally national in character. I have been in touch with pharmacy since April 14, 1865, and have been a participant in the changes that have taken place.

Pharmaceutic history reveals the fact that in the early days pharmacy and medicine were under the influence of English thought and customs. It was but natural that such should be the case. Up to the Civil War, there was but little deviation from English thought, customs and practices. German influence was just beginning to manifest itself but became submerged by the natural forces produced as a result of the Civil War. After the Civil War, German influence became a strong factor both in medicine and pharmacy. In the early 70's it was the predominating influence and held its position until the early 80's, when American thought, customs and practices became the natural forces for the essentials of American pharmaceutical history.

EARLY EDUCATION STATUS.

Prior to the Civil War and during the reconstruction period, pharmacy and medicine were under control of truly professional men, broadly educated, not only

* Read before Section on Education and Legislation, A. Ph. A., Indianapolis meeting, 1917.

in their chosen calling but also in science generally, including history, language and literature. Their education represented foreign thought directly and remained under foreign influence. American individuality had not as yet materialized, notwithstanding the fact that the opportunities for the interchange of thought were extremely limited up to this time. The American "melting pot" had as yet not evolved fixed American institutions which form national characteristics. We fail to appreciate this fact, the then existing conditions, and wonder why these pioneers in American pharmacy and medicine held so tenaciously to foreign customs and practices. We wonder why these men kept in touch with European thought and progress and yet were put to their own resourcefulness under environments so vastly different from European. At that time it was the best thought and they recognized the value of the old teachings by the mere force of isolated environment. They builded thereon for a better and higher humanity.

One need but read their history and gracefully acknowledge them as true heroes of American medical and pharmaceutical progress. They fully recognized, as men of vision, their children's shortcomings in the opportunities in acquiring education in the broad sense, such as they had enjoyed upon foreign soil. The American centers where such might be acquired were few and beyond the financial reach of most of them. As a natural sequence, we find the inauguration of a kind of "round table education" involving all branches of the then existing sciences, supported by foreign literature received during very uncertain periods of time. The theoretical education thus imparted, non-compulsory but self-seeking, was under constant surveillance through a system of practical apprenticeship. Idealism so essential to true culture, and refinement suffered, but in its place we find the sturdy practical experience superiority founded upon self and producing national strength. This is clearly manifested by these men of vision in shaping their limited forces to yield the greatest amount of efficiency. They were in touch with every European progress, ready to accept or reject every advance made by methods of verification, observation and improvements. They lacked the means for the interchange of thought and it is only within recent years that we became aware of this fact. We are all too prone to look upon the past under present conditions.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The men of vision realized that the opportunities for the interchange of thought had to be increased and they found the way for the expression of this natural force in the formation of the greatest association aiming at the highest ideals in American pharmacy. Notwithstanding its many trials and tribulations, be it said to the credit of this Association, that it has always maintained its constitutional ideals and at no time has its standard been lowered. Behind it has been the force of will, efficiency, courage and capacity for the preservation of its ideals. I deem it the greatest honor, and every pharmacist, no matter where located, should likewise deem it an honor to belong to this association, the American Pharmaceutical Association. This association is not alone national but also international in character and ranks second to none in the "World's Congress of Educational Institutions."

AMERICAN PHARMACEUTICAL ASSOCIATION PRODUCTS.

"Round table instruction" was succeeded by teaching institutions devoted to pharmacy and the allied sciences so far as they related to the practice of phar-

macy. In the very early period through the 70's these schools succeeded beyond expectation, the "round table instruction" had borne good fruit—a factor which was not sufficiently appreciated at the time. Records of those days prove conclusively that seekers of pharmaceutic knowledge were versed in English grammar; immaterial as to their nationality, they looked up to the teaching institutions of pharmacy as superior to themselves and worthy of the highest respect. They manifested this spirit in all inquiries for information through the channels of sealed letters couched in correct English. This material of preliminary education of "round table instruction," which was the basis of success of the old line pharmaceutical colleges, soon became exhausted and with its loss the educational success of the colleges decreased.

COMMERCIALISM.

The commercial phase in all lines of human activity made itself manifest about this time (early 80's) and likewise left its impress upon pharmacy. The practice of pharmacy as well as the teaching of pharmacy came under the dominion of commercialism. Exploitation of certain products not strictly in the domain of practical pharmacy, such as gelatin-coated pills, pepsin, malt extract, ergotin and so-called "elegant" preparations, was in its infancy but still upon a strictly ethical and hence legitimate basis. The future-seeing men soon recognized the drift of the times characterized as the "age of specialization." The old-time method of teaching in colleges of pharmacy continued, but soon proved to be on a faulty basis. The lack of general education and the lack of practical pharmaceutic knowledge failed in appreciation. Retrogression of discipline in reasoning power in an age of universal education and prosperity was considered an impossibility.

A NEW LINE OF PHARMACEUTIC COLLEGES.

The awakening finally came, but too late to overcome the position gained by commercialism. All efforts now centralized in pharmaceutic training devoted to theory combined with practical technique in the laboratories of the institution. The motive behind the movement shows true honesty of purpose and unselfish devotion to the progress both in the science and art of pharmacy but also short-sightedness in failing to recognize the value of true preliminary training and education.

The demands upon teaching institutions as to facilities, equipment and teaching corps increased tremendously and fostered a commercial spirit more intense than ever and not to the interest of true pharmaceutic education. This led unscrupulous men to the establishment of "diploma mills" and as a result the sincere efforts for higher pharmaceutic education suffered almost beyond redemption. The standard of pharmaceutic education and concomitant preliminary education became lower, cheaper and less secure, and as a sequence we have inherited the common knowledge of inferiority. The abuse of ethical principles affected the manufacture of pharmaceuticals in like manner. Exploitations of remedial agents to the medical profession and to the laity through the channels of the pharmaceutic calling destroyed all confidence once reposed in pharmacy. Intellectual progress in pharmacy became too general to be of any value. Abuse of every principle of common decency brought in the majesty of the law.

Men of education both in medicine and pharmacy visioned the inevitable result and hoped to maintain the welfare, health and happiness of the public by correcting all the evils by legislative restrictions. The intent again was sincere, primarily for the benefit of suffering humanity, but in reality for the restoration of medicine and pharmacy to their former standing. These legislative movements were encouraged by disinterested parties for the benefit of political influence and parties. This is proven by every measure enacted, for the means for the enforcement of acts are vague and lack sincerity of purpose. The enforcement of violations was left to men deficient in education or wholly disinterested and hence without knowledge of any nature pertaining to the practices of medicine and pharmacy; in charge of men forced to ignore moral courage in carrying out the spirit of the law. Measure after measure has been introduced under plea of higher education for the protection of the public, but all have been failures, more or less, for the one and single reason.

Schools of medicine and pharmacy multiplied without the "warrant of long-felt want," notwithstanding the restrictions placed upon facilities, equipment and teaching corps demanded long ago by law in almost every state of the union but opportunely enforced by the commissioner of education of the respective states.

STATE AND NATIONAL EDUCATION COMMISSIONERS

These general educational departments collect data of all kinds that have little bearing upon education. Teaching corps seem to be beyond their jurisdiction; education is a sham and a cheat unless carried on by able, accomplished teachers. The dignity of the profession of the teacher is beginning to be understood; the idea is dawning that no office can compare in solemnity and importance with that of training the mind. Institutions of learning, like human beings, are desirous of recognition, to be something or some one well thought of, and hence these institutions are diplomatic in answering all questions, relevant or otherwise, to the best of their knowledge and belief. Many of the institutions receiving state aid and having many interlocking departments of study, find it convenient to duplicate valuations and thereby show that the money appropriated through general taxation has been well spent.

The attempt of universities to corral students under the pleas of higher education and that of the poor boys' opportunity for education under a lower standard than that required for a university degree has not advanced education, pharmaceutical or otherwise. It cheapens true education and gives the impression of sham. History repeats itself as is shown by the excerpt from *Holinshed's Chronicles 1577*:

Cambridge and Oxford, two of the oldest institutions of learning in the world, were created by their founders at the first only for poor men's sons, whose parents were not able to bring them unto learning, but now they have the least benefit of them, by reason the rich so encroach upon them. And so far has the inconvenience spread itself that it is in my time a hard matter for a poor man's child to come by a fellowship. Such packing also is used at elections that not he which best deserveth but he that has the most friends, though he be the worst scholar is always surest to speed which in turn will end in the overthrow of learning.

State universities advertise instruction free to citizens of the state, but to my knowledge I know of none where this is true. Careful investigation proves that the expenses of these "free" courses average between \$60.00 and \$100.00 per

session to the resident students, an intended misrepresentation to the tax-paying public, known for their indifference and lack of study of economic questions affecting their welfare. All these institutions sail under two flags, those students of the university who never become pharmacists and those known as short-course students who do follow pharmacy; the former must be graduates of an accredited high school, the latter need not be; the first receive a university degree, the second do not, but they may get a certificate; the first get a broad education, the second a smatter of knowledge, usually sufficient for a board of pharmacy certificate. The first become representative men while the second seldom do, well aware of their own deficiency. I maintain that these school courses in pharmacy, and for that matter in any other branch of science, have lowered the standard of pharmacy directly and in the estimation of the public mind, indirectly. It is not a question of how good or how poor these courses of instruction are, but the psychological effect upon the human mind. That this effect is not to the interest of pharmacy, not to the interest of the teaching institutions, can easily be ascertained.

PHARMACEUTICAL ASSOCIATIONS.

Pharmaceutical as well as medical associations have discussed in conventions the many problems confronting them, educational and otherwise, affecting their welfare. After separating the many elements bound together, they finally resolve to do certain things or recommend that committees do justice to the recommendations adopted without offering the means for carrying out the contemplated acts. Members fail to recognize their importance as individuals or integral parts of the associations and in the reforms suggested. They fall into the profound but common error of mistaking the beginning for the end of the work. Financial as well as personal support is necessary to every movement and as neither is usually forthcoming, but little is accomplished and that little by a small minority of unselfishly devoted men.

The medical profession, notwithstanding its powerful and highly disciplined organization, has reaped the same experience, though much more successful in legislative movements. I believe a psychological effect to be responsible for this success since they recognized that legislation and resolutions did not cure the existing evils by subsequent action. Up to this period, physicians and pharmacists occupied the same plane of intellectuality and education, neither profession could claim educational superiority although the medical profession enjoyed a higher plane of intellectuality in the minds of the public. Medical men of vision were equal to the occasion and as a result of this vision we have "an exposé of medical education;" an enterprise carefully planned and judiciously fostered and which brought about true medical education; pre-medical education based upon thorough preliminary education, to be followed by the medical education.

Pharmacy has not yet reached this stage of development nor anything near like it, notwithstanding the institution known as the Conference of Teaching Faculties. One need but peruse their report of the annual proceedings and fully recognize the reason of their failure. What avails intellectual power without moral power?

CONFERENCE OF TEACHING FACULTIES.

The motive behind the movement is truly sincere, but the lack of moral courage to enforce the principles of organization has utterly destroyed the efficiency fos-

tering pharmaceutical education upon a worthy plane. The adoption of the National Syllabus without the adoption of the necessary foundation for its comprehension by students of pharmacy, nullifies every effort towards better trained pharmacists. As a fundamental principle, all members of the Conference must abide by the principles of organization without evasion of any kind under any pretext whatever in order to bring pharmacy to a state of governmental recognition. Sentiments of friendship or comradeship must not prevail. We still can remain friends and yet antagonize each other upon economic principles provided we learn to live more by reason and principle than blind sentiment. The Conference stands for high educational qualification and the enforcement of the principles of true higher education upon a uniform and united basis. This Conference should be the intermediary between the colleges of pharmacy and the boards of pharmacy. Those who cannot follow or will not follow the precepts laid down must step down and out publicly.

BOARDS OF PHARMACY.

Boards of Pharmacy were created to curb the activities of "diploma mills" and as such were considered as inspectors of the training performed by the teaching institutions of pharmacy. They have but one duty to perform, namely, to ascertain the fitness of the applicant to the practice of pharmacy. In recent years they have reached out for more power and authority, namely, the supervision of the quality of drugs. We need not discuss the motives that govern this desire or the desirability of such movement. Colleges of pharmacy may train students of pharmacy to assume all the responsibilities incidental to their supplying the public with drugs and medicines of proper strength and quality under the laws of the art and yet such students fail to receive the approval of boards of pharmacy in very many instances. The question is frequently asked why a college-trained student fails and the "quiz compend" student succeeds? It is not an easy matter to place the responsibility. All the factors that make up the pharmacy law of to-day are so closely interwoven that separation of the influencing factors becomes extremely difficult. Foremost, all the various state laws require practical experience in a drug store where prescriptions are filled and this implies that the products entering into the prescriptions, that is, the products of the U. S. Pharmacopoeia, are manufactured in that pharmacy, but unfortunately, this is now seldom the case. The commercial phase dominating all lines of industry reduces to a minimum the production of pharmacopoeial products in a pharmacy proper. Colleges of pharmacy were supposed to rectify this deficiency in manufacturing by a course of laboratory training, but unfortunately, the opportunities for repeated operations for the same product cannot intelligently exist in a teaching institution. Boards of pharmacy fail to recognize this fact which is clearly shown in all state board questions. Questions involving principles of action in the making of pharmacopoeial products seldom appear in the tests and hence the really qualified applicant gets no opportunity to express his fitness and must of necessity fail because he lacks the memorizing faculty demanded by boards of pharmacy as the criterion of fitness.

Some institutions shape their courses accordingly; they may reap a large percentage of successful candidates, but these will never be a credit to pharmacy

nor will they ever make any effort towards a higher and efficient pharmacy. The plea that some boards of pharmacy fail to require or to recognize preliminary education of pharmaceutic training offers no excuse for violating the cherished principles underlying a higher and truer American pharmacy. Colleges of pharmacy and boards of pharmacy are both sincere in their aims, namely, the advancement of the interests of American pharmacy, but unfortunately there is no real coöperation between them. Boards of pharmacy will remain supervisors of colleges, but as such they should go beyond their common functions and mutually interchange suggestions and work in harmony upon specifically agreed lines. The idea that a person is proficient in one state and not in another is simply preposterous. It discredits not alone the pharmacist but also the examiner.

UNITED STATES PHARMACOPOEIA.

Any one familiar with the official text for the practice of pharmacy must admit progress with each succeeding revision. The last or the ninth revision shows beyond question the most advanced progress over all other pharmacopoeias. The standard of identity and purity and the methods of determining purity and strength are so rigid and so exact and based upon the very latest approved methods, that this official text-book becomes worthless to the average American pharmacist of to-day. Is there any valid reason that such a condition should exist? Does the American pharmacist lack the training and knowledge necessary for the comprehension of the pharmacopoeial text or is it only indifference on his part due to a commercial phase? On the other hand, it has been questioned whether certain pharmacopoeial standards, such as the saponification value, iodine value of fixed oils, are safe criterions of purity; that assay methods under pharmacopoeial quantities are not real indices of strength; that outside of a few waters and syrups the pharmacist is restricted to hypercritical limitations not to the interests of the pharmacist nor the practice of pharmacy; that these restrictions are to the benefit of the manufacturer directly. Teaching institutions of pharmacy may devote much time and energy in putting these pharmacopoeial methods to practical application and test in their laboratories but when a spirit of indifference and lack of appreciation pervades the atmosphere of the preceptor, not much interest can be aroused in the student.

The common cry of practical pharmacy and practical pharmacists is fostered altogether too much and under the present status of enlightenment in all science can not redound to the interest of American pharmacy. The practical pharmacist of fifty years ago has no existence to-day. In his place we find the man of "Applied Science." Huxley says:

Applied science is nothing but the application of pure science to particular classes of problems. It consists of deductions from those general principles established by reasoning and observations which constitute pure science. No one can safely make these deductions until he has a firm grasp of the principles and he can obtain that grasp only by personal experience of the operations of observation and of reasoning on which they are founded.

Shall American pharmacy be pure science as represented by the U. S. Pharmacopoeia or shall haphazard, go-as-you-please methods prevail? The result depends solely upon educators.

THE MANUFACTURER.

The consideration of the manufacturer of chemicals and especially of pharmaceuticals has to my knowledge never been considered as a factor in the plan of pharmaceutical education. He has been ignored altogether, notwithstanding that he has spent millions in furthering the true science of pharmacy. He has searched the world over for crude drugs, determined their value in the interests of humanity by a corps of investigators of recognized ability. Self-preservation is the first law of nature and it is but fair to grant adequate returns to the manufacturer for commercial enterprise and financial sacrifice in his coöperation to the advancement of pharmaceutic knowledge. Rigid methods of purity and identity combined with demands of uniform and definite strengths are undoubtedly to his interest, commercially as well as scientifically. On the other hand, it is commercially and scientifically wrong for pharmacists to buy from the manufacturer in order to put the responsibility of identity, purity and strength upon his shoulders in order to evade food and drug laws. The very act is cowardly and an admission of the lack of confidence in self.

CONCLUSION.

The opportunities for the interchange of thought have become so general and cheap that any one, no matter what his station in life may be, can secure knowledge in any branch of endeavor without much effort. In contrast with fifty years ago, yea twenty years ago, we can discern the vast difference between past and present opportunities. In the past the means of acquiring knowledge were limited, expensive and not of access to the masses. Under the laws of human nature, this fact has awakened the faculties of the mind to appreciation and energy worthy of a fair measure of judgment of the true and false. To-day, for the same reason, this awakening does not take place and hence we need not expect the power of discrimination. Public opinion, the opinion of the masses, has no stability and for that reason is easily moved in every line of thought for the lack of reasoning power. External influences readily sway opinion favorable to-day but discredited to-morrow. Men's thoughts are much according to their inclination, to their learning and infused opinions.

Pharmacy and pharmacists have had more than their deserved share of abuse and hence it is not surprising that opinion is not very flattering to them. The art of thinking justly and strongly is not encouraged and hence the stimulus to intellect, reflection, reason and judgment are wanting. Pharmacy cannot be divorced from commercialism nor is it necessary. The fruits of unity, based upon intelligence accruing from education through reason, observation and experience will exalt both the professional and commercial phase of pharmacy. According to the Scriptures, "Grapes will not be gathered of thorns and thistles." Likewise, "Break up the fallow ground and sow not among thorns."

PROCEEDINGS OF THE LOCAL BRANCHES

CHICAGO.

Prof. Henry Kraemer of Ann Arbor presented a very fine illustrated lecture on "War and Microscopical Research," before the Chicago Branch, American Pharmaceutical Association, Thursday evening, March 14, at the City Club. Members of the Branch, their ladies and friends and a goodly delegation from the Illinois Microscopical Society formed a large and appreciative audience that greeted Dr. Kraemer most cordially.

About one hundred sat at dinner, preceding the lecture, in honor of Dr. Kraemer and as a farewell to Hugh Craig, President of the Branch who has resigned his office because of removing from Chicago to Detroit where he takes up new work.

Testimonials appreciative of Mr. Craig's good work and fine character were presented by Thomas H. Potts, James Crowley and W. B. Day. There was an expression of deep regret at our loss of Mr. and Mrs. Craig, accompanied, however, with an offer of best wishes to them in their new home and social circle.

In the short business session of the Branch, a very able and remarkably complete report of the Committee on Compulsory Health Insurance¹ was read by J. H. Wells in the absence of Chairman Beal. The report recommended that the Chicago Branch of the American Pharmaceutical Association refuse to endorse the standard bill proposed by the American Association for Labor Legislation and, in case such legislation is proposed in the State of Illinois, that the members of the Branch, individually and collectively, take an active part in seeing that the general public, and especially taxpayers, wage earners, and members of the medical profession and of the drug trade shall be fully informed of the dangers of state subsidized compulsory health insurance and of the results that have followed the establishment of such insurance in other countries.

E. N. GATHERCOAL,
Secretary.

DETROIT.

The regular meeting of the Detroit Branch of the American Pharmaceutical Association was held at the Wayne County Medical Build-

ing, March 15. Dr. Leschoier, a member of the medical staff of Parke, Davis & Co., gave a very interesting talk on vaccines and antitoxins. With the aid of a stereopticon, the steps in the preparation of these products were shown. The druggists were cautioned regarding the storage of vaccines and antitoxins, which, on account of their extremely delicate nature, must not be subjected to temperatures higher than specified on the containers.

Chas. F. Wendell, Display-Manager of the J. L. Hudson Company, told his audience that, as a class, the druggists' windows were not what they should be in order to make them yield the proper returns. But bearing in mind the points which Mr. Wendell named as the first essentials, Detroit druggists will soon rank as leaders in the art of window decorating. Since quality is the first consideration of a pharmacist, this must be demonstrated in the displays. Mr. Wendell advised that a window appropriation be made, that suitable fixtures and not makeshifts be obtained and that a layout be arranged before attempting to dress a window; change the displays frequently and have everything spotless.

MAY STRAWN,
Secretary.

NEW YORK.

The March meeting of the New York Branch of the American Pharmaceutical Association was called to order by President McCartney in the lecture hall of the New York College of Pharmacy Building on Monday the 11th, at 8 30 P.M.

Fifty-two members were present.

The minutes of the preceding meeting were read and approved.

The Treasurer's report was received and ordered filed.

Member of the Council: Professor Hostmann stated that he had nothing new to report.

Committee on Education and Legislation: Mr. Lehman reported on the proposed change in the Board of Pharmacy laws, shorter hours bill, the Hicks bill, on the new disclosure of formulas bills and on various suits and court decisions. He also reported on the Federal alcohol tax refund and discussed probability that the Workman's Compensation Insurance

¹ See this issue of the JOURNAL under Committee Reports.

would be taken over by the state. After some discussion it was ordered accepted.

Progress of Pharmacy: Dr. Dickman brought in a lengthy report and abstracts on the following topics:

Manufacture of Potato Starch from Partially Decomposed Potatoes.

Use of Straw for Manufacturing of Gas.

Detection of Foreign Oil in Castor Oil.

Detection of Chlorates in Presence of Hypochlorites.

Detection of Toxicity of Cottonseed Products. Production of Zinc Perhydrates.

Colorimetric Methods of Determining Morphine.

Reaction for Nitrils.

Composition of Thymol Mercurial Acetate.

Considerable discussion followed the reading of this report, which was ordered accepted.

Special Committee: The Committee on By-Laws brought in their report. After considerable discussion some changes in amendments of the by-laws were adopted. The Committee was then discharged with the thanks of the Branch. By motion, regularly moved, seconded and carried, the Secretary was empowered to have printed copies of the constitution together with the new by-laws as well as a list of members of the Branch and to send each member of the Branch a copy of the foregoing. It was now moved, seconded and carried that the President appoint the members of the Committee on Legislation and Education to act as delegates to go to Baltimore and Washington to attend the conference and hearing on the Edmonds Bill.

New Business: The Secretary read a short paper outlining a plan for a "Pharmacy Honor Medal"¹ and suggested that the Branch consider it. It was then moved, seconded and carried to consider the proposition and the following committee was appointed: Hugo H. Schaefer, *Chairman*, Jeannot Hostmann, Caswell A. Mayo, J. L. Mayer and Fred Nitardy.

A paper was read by Prof. Jeannot Hostmann on "Legislating for the Pharmacist." The speaker related many interesting and amusing anecdotes of his experience with legislatures, etc.; considerable discussion followed. A rising vote of thanks was extended to Prof. Jeannot Hostmann.

HUGO H. SCHAEFER,
Secretary.

A PHARMACY HONOR MEDAL.²

We have all heard of the "Perkin Medal" and of the "Nichols Medal." These are medals given annually by the American Chemical Society and by the Society of Chemical Engineering as the highest mark of honor for work done or things accomplished by any individual in the respective branches of science which these two great societies represent. Should not Pharmacy also possess a similar method of showing its appreciation for any signal service performed in the interest of American Pharmacy? With this in view I would suggest the following plan:

That a gold medal or a bronze medallion suitably named be awarded annually to the man or woman who has done most for American Pharmacy during the preceding year or whose efforts during a number of years have culminated to a point during the preceding year where the result of these efforts would be considered as being the most important and advantageous for American Pharmacy.

That the New York Local Branch of the American Pharmaceutical Association take the matter in hand to the extent of devoting one meeting annually to the presentation of this medal.

That in order to make the presentation of this award permanent and perpetual, a fund of \$1000.00 be created either by donations or by means of arranging for a sinking fund, this fund to be invested in gilt edged stocks or bonds, preferably Liberty Bonds and the interest thereof to be used to defray the expense of the award.

That the medal be awarded by a standing committee consisting of all the past presidents of the American Pharmaceutical Association, and in case the number of living past presidents is less than five, the senior past vice-presidents of the American Pharmaceutical Association are to be drawn upon in sufficient number to create a committee of five. That no bar be placed as to the candidate's profession, or kind of work accomplished.

That the medal be presented by the senior past president of the Local Branch mentioned above and taking this meeting in hand.

That the consent and support of the American Pharmaceutical Association be officially obtained to give the presentation of this medal at the Local Branch meeting a national aspect

¹ See immediately following the report of this meeting.

² See action of New York Branch, A. Ph. A., this issue of the JOURNAL.

and as coming from the American Pharmaceutical Association and not merely from the Local Branch.

In conclusion, I would like to say that of course the criticism will be brought up that the presentation of such medal ought to be performed at the annual meeting of the parent organization rather than at a Local Branch meeting. To this I would like to point out that such a presentation could only represent a small part of the day's programme at the Convention, while at a Local Branch an entire evening would be devoted to it.

Since our Branch is the largest and fastest growing branch, since we are located in the largest city as well as for many other reasons, I would suggest that this plan be taken up for consideration by the New York Branch.

HUGO H. SCHAEFER.

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held at the Philadelphia College of Pharmacy Wednesday evening, March 19, with the president, Ambrose Hunsberger, in the chair.

Following the regular order of business, reading the minutes, election of new members, etc., Dr. Horatio C. Wood, Jr., read a very interesting paper on "The Elixirs of the National Formulary IV,"¹ in which he pointed out in his own inimitable style the faults of most of the elixirs and the merits of a few. He particularly deplored the lack of uniformity in the doses of the medicinal elixirs and also the uselessness, as he termed it, of many of the formulas given. "It is an insult," said Dr. Wood, "to the intelligent physician to bring into an official book, as simple a formula as the elixir of cascara, which is made by just mixing together the fluidextract and aromatic elixir. An elixir, containing such antagonistic agents as strychnine, bismuth and pepsin, has no place in an official and, presumably, scientific book and the sooner such preparations are deleted, the better it will be for the reputation of the National Formulary."

Professor LaWall opened the discussion on Dr. Wood's paper by quoting the senior Dr. Wood's statement that "it is the duty of framers of pharmacopoeias and other official books to maintain standards for anything which a physician might have occasion to use in his

practice, even if it has no more value than brick dust."

Mr. Beringer then ably answered Dr. Wood's statements and said, in part, that the National Formulary was compiled to answer a specific purpose, to establish a uniformity of standards for the less widely used preparations and drugs. Pharmacists could not be directly charged with the lack of uniformity in the doses of the various medicinal elixirs. Mr. Beringer also pointed out the fact that the comparison of the N. F. IV with the U. S. P. IX was not quite fair, when one had the advantage of eight previous editions and the other only three.

Mr. England stated that the paper was well worthy of being submitted to the Chairman of the Committee of Revision of the N. F., and made such a motion, which was adopted. He also moved that the Branch extend its thanks to Dr. Wood for his constructive criticisms and his very helpful remarks.

F. M. Apple deplored the lack of intelligent propaganda among physicians, to acquaint them with the good formulas of the N. F. and U. S. P., and stated that the parent body was derelict in its duty in not taking the initiative in this matter.

Coinciding with Mr. Apple's views, J. K. Thum then made a motion that a committee be appointed to report on the desirability of commencing propaganda work among physicians. Professor Gershenfeld seconded this motion, which was subsequently adopted and the president was authorized to appoint a committee of three to consider the matter.

The other contribution of the evening was a paper by Prof. H. W. Youngken, on "Wafer Ash Bark as an Adulterant for Euponymus (Wahoo Bark)." Despite the technical character of the paper, Professor Youngken presented it in an understandable and interesting manner and it was afterwards very briskly discussed by Dr. Lowe, Messrs. Beringer, Thum and Griffith. The lantern slides which were shown added much to the value of the paper.

The Secretary then read the report of the Committee on the Endorsement of the Edmonds Bill, and the Branch endorsed this bill or any other measure that would give pharmacy the professional standing to which it is rightfully entitled.

Professor Cook, in presenting the report of the pharmaceutical section of the committee on ways and means of conserving drugs and

¹ See this issue of the JOURNAL.

supplies, suggested that the next meeting of the Branch be dedicated to a thorough consideration of this question, when the committees would be able to present more comprehensive reports. Professor LaWall made such a motion and it was duly seconded and adopted.

The Committee on Nominations then presented their report which was accepted and the nominees were thereafter elected. President Hunsberger relinquished the chair which he had so ably filled during the past year and Mr. McNeary assumed his new duties. The thanks and appreciation of the Branch were extended to the retiring President whose year of administration had been particularly suc-

cessful from every standpoint. The new officers and committees follow: W. W. McNeary, *President*; F. P. Stroup, *First Vice-President*; K. F. Elmann, *Second Vice-President*; Ivor Griffith, *Secretary and Treasurer*; *Committee on Fraternal Relations*—F. M. Apple, *Chairman*, F. E. Stewart, J. K. Thum; *Committee on Practical Pharmacy*—J. C. Peacock, *Chairman*, E. Fullerton Cook, J. R. Minehart; *Committee on Membership*—R. P. Fischelis, *Chairman*; Ambrose Hunsberger, L. Gershenfeld.

The meeting was attended by over 60 persons.

IVOR GRIFFITH,
Secretary.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 12.

PHILADELPHIA, PA., MARCH 16, 1918.
To the Members of the Council.

Motion No. 19 (Election of Members; applications Nos. 69 to 84 inclusive) has received a majority of affirmative votes.

The following report is presented

Report to the Council of the American Pharmaceutical Association:

The special committee of the Council which was appointed at Indianapolis for the purpose of determining the situation at the United States National Museum relative to the housing of the collection of historical pharmacy has conferred with Mr. F. L. Lewton, Curator of Pharmaceutical and Medical Exhibits, and desires to report that adequate provisions exist in the National Museum for the custody and display of specimens illustrative of historical pharmacy.

The National Museum would prefer, wherever possible, that the specimens be offered as outright gifts, but where this is not desirable or feasible, it will gladly accept as loans or deposits, valuable material on the subject of pharmacy, materia medica, and the history of pharmacy. It is customary for loans to be accepted with the understanding that they will be left undisturbed for a year or more, while deposits are usually made for a longer indefinite period. The Museum cannot bind itself to permanently install any exhibit, or to keep any certain assemblage of specimens always exhibited to public view. It can, however, agree to safeguard them and keep them available for examination and study whenever desired. In order to avoid duplica-

tion of material, the Museum would request that all exhibits offered it as gifts, loans or deposits, be first arranged for by correspondence, and the submission of a list or inventory giving an idea of the character and quantity of the material offered.

The committee believes that any property of the Association placed in the National Museum will receive adequate care and therefore recommends to the Council that the collection of historical pharmacy or whatever part of it as may be deemed advisable be placed in the National Museum as a gift or loan from the American Pharmaceutical Association.

Respectfully submitted,

W. W. STOCKBERGER,
H. C. FULLER,
S. L. HILTON.

A motion to approve this report is in order.

The following communication has been received from E. G. Eberle:

"I am in receipt of the following letter from the Smithsonian Institute, United States National Museum, Washington, D. C.:

"In exchange for publications of the United States National Museum, a list of which is enclosed, may I obtain for the Library Vols. 1-5 and Nos. 1-7 of Vol. 6 (1917) of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, which are wanted to complete the set? In return I shall be pleased to have sent you such of a selection of the available Museum publications as you may desire.

(Signed) By authority of the Secretary."

"In my opinion we should grant this request and have a full set of the JOURNAL in the Library of the Smithsonian Institute. I therefore move

that the request of the Smithsonian Institute be granted and that a complete set of the JOURNALS as requested be donated and that the Editor be authorized to forward these copies to the Smithsonian Institute.

"The motion is seconded by William B. Day."

Do you favor the above motion? It will be regarded as *Motion No. 20 (Request of Smithsonian Institute for Journals)*.

Motion No. 21 (Election of Members). You are requested to vote on the following applications for membership:

- No. 85. A. P. W. Twombly, 721 Huntington Ave., Boston, Mass., rec. by E. G. Eberle and John G. Godding.
- No. 86. William George Ungerer, 124 W. 19th St., New York, N. Y., rec. by Hugo Kantrowitz and Francis B. Hays.
- No. 87. Judson H. Sencindiver, 48 Seaton Place, N. W., Washington, D. C., rec. by S. L. Hilton and Redmond Mayo.
- No. 88. Samuel L. Antonow, 1360 S. Springfield Ave., Chicago, Ill., rec. by Charles Orr and Wm. B. Day.
- No. 89. Hugo R. Glissman, Palm's Hotel, Des Moines, Iowa., rec. by A. C. Heidenreich and William B. Day.
- No. 90. Roger L. Carson, P. O. Box 185, Eagle Pass, Texas, rec. by E. G. Eberle and C. A. Duncan.
- No. 91. Abraham Rabinowitz, 931 Fairmount Ave., Philadelphia, Pa., rec. by Edwin M. Boring and E. G. Eberle.
- No. 92. C. D. Johnson, Brainerd, Minn., rec. by Chas. E. Matthews and Wm. E. Burke.
- No. 93. Lester W. Wilke, Garnareello, Iowa, rec. by E. O. Kagy and Wm. B. Day.
- No. 94. Anna E. Mulrean, 2631 Harriet Ave., So., Minneapolis, Minn., rec. by Charles H. Rogers and F. J. Wulling.
- No. 95. Earl N. Greenberg, 823 Logan Ave., N., Minneapolis, Minn., rec. by Charles H. Rogers and F. J. Wulling.
- No. 96. Abraham Strimling, 94 Highland Ave., N., Minneapolis, Minn., rec. by Charles H. Rogers and F. J. Wulling.
- No. 97. William Strimling, 94 Highland Ave., Minneapolis, Minn., rec. by Charles H. Rogers and F. J. Wulling.
- No. 98. Harry T. Moyer, 5756 Chicago Ave., Chicago, Ill., rec. by Wm. B. Day and Clyde M. Snow.
- No. 99. H. S. McCracken, 923 W. 16th Place, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 100. Edward M. Givens, 34 Marey St., Freehold, N. J., rec. by Harry W. Crooks and Edward A. Sayre.
- No. 101. Clarence F. Ramsay, 10 E. Worcester St., Worcester, Mass., rec. by E. G. Eberle and J. W. England.
- No. 102. Hamilton Russell, 121 S. Palafox St., Pensacola, Fla., rec. by Charles H. LaWall and E. G. Eberle.
- No. 103. John H. Neumann, Lewiston, Minn., rec. by C. E. Matthews and Wm. B. Day.
- No. 104. Eugene Katz, 895 West End Ave., New York, N. Y., rec. by Frank L. McCartney and Turner F. Currens.
- No. 105. Julius S. Bellack, 1508 E. 57th St., Chicago, Ill., rec. by Charles C. Orr and S. C. Henry.
- No. 106. Oscar U. Sisson, 5034 Cottage Grove Ave., Chicago, Ill., rec. by Wm. B. Day and Wm. Gray.
- No. 107. Frank Nau, 141 6th St., Portland, Ore., rec. by Fred I. Laekenback and Wm. B. Day.
- No. 108. Albert E. Mullen, 2482 Valentine Ave., New York, N. Y., rec. by Turner F. Currens and Frank L. McCartney.
- No. 109. H. B. Shattuck, 31 East 17th St., New York, N. Y., rec. by Frank L. McCartney and Turner F. Currens.
- No. 110. Carmelo Patella, 353 First St., Jersey City, N. J., rec. by Turner F. Currens and Frank L. McCartney.
- No. 111. William Frank Parker, 51 West 37th St., New York, N. Y., rec. by Eugene G. Eberle and J. W. England.
- No. 112. John Edward Martel, 152 Ave. A., Turners Falls, Mass., rec. by John F. Correa and John G. Godding.
- No. 113. Philip Jacob Kolb, 2401 Claybourn Ave., Chicago, Ill., rec. by Chas. Matthews and Wm. B. Day.
- No. 114. Gustav S. Kolar, 1801 Millard Ave., Chicago, Ill., rec. by M. A. Miner and Wm. B. Day.

J. W. ENGLAND,

415 N. 33rd Street, PHILA., PA. *Secretary.*

RESOLUTIONS ON THE DEATH OF JOSEPH PRICE REMINGTON.

BY COMMITTEE OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

"Tis not in mortals to command success,
But we'll do more, we'll deserve it."

Professor Joseph Price Remington, pharmacist, teacher, executive, writer, Christian gentleman—all these and more departed when on January first, nineteen hundred and eighteen, the leader of our profession went to "mix forever with the elements," and left behind him a memory which shall serve as an inspiration to workers of generations yet to come.

We can not adequately pay tribute to him nor honor him to the extent which is his due. We can only mourn our loss and give voice to a few of the thoughts that arise in us.

The elements of success are often sought for and wondered at after a great man has passed away. In the case of our friend and leader the cause of his success was not obscure. It came to him because he loved his profession and worked for it with every "nerve and bone and sinew." His was an altruistic nature where the good of pharmacy was concerned, and we, his friends and co-workers, representing the American Pharmaceutical Association, desire on behalf of that organization, to express our appreciation of his greatness and our sense of grief at the loss which pharmacy has sustained.

(Signed) CHARLES H. LAWALL, *Chairman*,
H. V. ARNY,
E. G. EBERLE,
S. L. HILTON,
FRANK G. RYAN.

RESOLUTIONS ON THE DEATH OF CHARLES HOLZHÄUER.

BY COMMITTEE OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

WHEREAS, death has removed from the service of this Association, and from the happy companionship of its members, our beloved President, Charles Holzhauser, it seems fitting, as it is to us most desirable, that we should place on record our appreciation of the character and life-work of the deceased, and the deep grief which his loss has brought to us.

The earnest labors for the success of our coming meeting in which President Holzhauser was engaged at the time of his death, was but the culmination of an exceptionally long and faithful membership in the American Pharmaceutical Association. To him, Association

membership was an important part of life, and its meetings among the important events of their respective years. Yet we shared his interest and devotion with many other associations and public interests which enjoyed his support. He was an active and valued member of his state association and of the New York College of Pharmacy, of which he was for many years a Trustee. Not only was he a tower of strength to the particular church of which he was a member, but a generous and helpful friend to many another in its hour of need, and his heart and hand were freely extended to religious work throughout the world. His contribution to the world's work was not that of a mere assenting contributor; he was also active and strong in the framing of policies, and prompt, though ever gentle and kindly, in bestowing criticism and in correcting error and misjudgment. In public affairs, his good citizenship was equally conspicuous. A Republican in politics, he was faithful to his party, yet would no more condone wrongdoing by his associates than by his opponents. He was so good a pharmacist that he acquired a wide and strong influence throughout the city in which he lived, and his influence once secured, was apt to be permanent. The friends of his youth were those of his later years, yet he possessed the happy faculty of attracting also those of a later generation.

In all his work, both private and public, Mr. Holzhauser was simple, calm and unassuming. His strength was the strength of repose, and his influence was thereby the more effective. His judgment of men, motives and measures was prompt, decisive and rarely at fault, and his advice was sought to an extent known only to those who were intimate with him. Such was Charles Holzhauser, the citizen and the man!

It was our great privilege, as his fellow members in this Association, to enjoy the benefits of generous companionship with such a character. His great heart could not be filled by the Association's organization affairs alone. He took into it the personal interests of a very large number of its members. Few exceeded him in the extent of their personal acquaintance with fellow members, to whom he frequently referred in conversation throughout the year. His regard was reciprocated, few being more inquired after when they were missed in attendance at the meeting.

Always modest and retiring, it was Mr. Holzhauser's preference, and his usual custom, to

remain in the background at our conventions, but when his voice was needed to guide counsels, or to prevent mistakes, he was never backward in the performance of his duty. He was generally regarded as a balance wheel in the Association and his opinions were freely sought by those who knew him well. Many a good measure has been furthered and carried because of the advice thus privately secured.

Probably no other public event of his life brought to Mr. Holzhauer such deep satisfaction as his election to the Presidency of our Association. So modest was he that he genuinely doubted whether a majority of the members could prefer him to others whom he

recognized as being eminently qualified for the position. His pride and joy in becoming the recipient of this great honor were deep and full. We, his survivors, can best honor him by a faithful adherence to the principles by which he was guided.

With high appreciation and deep sorrow, we inscribe this tribute to his memory in the Association's records, and with deepest sympathy transmit a copy of the same to his bereaved family.

H. H. RUSBY, *Chairman*,
EDWARD W. RUNYON,
HENRY M. WHELPLEY,
CLARENCE O. BIGELOW,
JOHN G. GODDING.

LETTER TO THE EDITOR, RELATING TO PROF. JOS. P. REMINGTON.

I met Professor Remington first at Hot Springs, Ark., in September 1908, at a meeting of the A. Ph. A., the first one I ever attended. Strange to say perhaps, but the quiet reserve, and strong elements of character of this wonderful man, attracted my attention, and my impression of him was further strengthened and emphasized by the unique and original manner in which the late, still beloved Hallberg introduced him at a meeting of the Diastase Club.

I never felt at any time, that I was privileged to break in upon the quiet and sober reservedness of this good hearted man; yet I was always greatly profited and much delighted, whenever it was my good fortune to be thrown with—in the radius of influence, of his strong and attractive personality.

It was my great joy and personal privilege on several occasions, to be alone in friendly communion with this highly cultured, knightly, courteous gentleman, and splendid entertainer, at which time we exchanged a few stories, an art in which he had no superiors and few peers.

I was walking through the corridor of the Brown Palace Hotel at Denver, Colorado, when the A. Ph. A. met there, when some one hailed me, "Texas where are you going?" and I answered, exercising no definite destination; and Prof. Remington said, come and be with me for a while, to which I most cheerfully responded. While conversing together, Grand Pa Ellis came along, and he called him and introduced him as his preceptor, and had him sit down between us. This was a rich, rare and racy treat to me, in listening to the experiences here unfolded. Grand Pa Ellis addressed Professor Remington as his boy "Joe," and related the great disturbance that Joe experienced over the sale of an eighth of an ounce of bottle of morphine to a customer, who opened the bottle and swallowed the entire contents, causing Joe to beat a hasty retreat out of the store after Grand Pa Ellis to advise him of this awful catastrophe, that had so startled and distressed his young and inexperienced mind. Grand Pa Ellis told of the birthday dinners "of he and Joe" at Longport, sending several postal cards, repeatedly to Texas notifying me of the approach of these dinner happenings. This was truly a Methodist lovefeast, reciting many joyous happenings of the past, which were sanctified with dampened eyes, and never before have I witnessed such an uninterrupted flow of love and affection; such communion of souls, and unification of hearts as seemed to exist between Grand Pa Ellis and his son "Joe," and the tender, sympathetic thoughts engendered in my mind and heart on this occasion, will never be effaced from my memory, for I was captivated and charmed, and fell desperately in love with these two grand and venerable characters.

Professor Remington was great in that he was unselfish, giving so much of self to the benefit and growth of others—so charitable and considerate of all; so modest and unassuming; in social intercourse, so entertaining and instructive; so sweet and kind in disposition; in personality so strong, that he unconsciously attracted attention, and made lasting and abiding impressions upon all with whom he came in contact.

My greatest regret is that I could not have seen more of him and known him better; but with the association that I was privileged to enjoy, I can of a truth say that his life was a most wonderful inspiration to me, and his memory a lasting and blessed benediction.

In sadness and great sympathy do I share the irreparable loss that the going of this noble, good man has occasioned among his own household, loved ones, and legion of friends.

Yours sincerely,
R. H. WALKER.

A TEMPLE OF PHARMACY FORECAST.*

"Professor Wulling's plan of confederating the national drug organizations struck me with much force. It appears at first to be impractical; but when you come to think it over, it seems entirely feasible, if too much is not attempted, and if his idea that the American Pharmaceutical Association shall be the controlling factor can be dispelled.

"When you consider for a moment, you will find that there is reason for the existence of all these organizations. Why did the national wholesale drug trade organize and withdraw from the American Pharmaceutical Association? It was simply because the American Pharmaceutical Association was not meeting the needs of wholesale druggists. Why was the National Association of Retail Druggists formed? Because there were certain commercial necessities that the American Pharmaceutical Association did not meet in the field of retail pharmacy. Then for a long time the pharmaceutical manufacturers were not organized. Each individual concern was a football between conflicting interests. One did not dare to move in the right direction for fear a competitor might take advantage of his stand by offering an unjust concession. So the organization of what was first called the National Association of Manufacturers of Medicinal Products arose out of the problems that confronted all manufacturing pharmacists. The necessities of manufacturing pharmacy were not met by the American Pharmaceutical Association, with which each individual concern was connected; nor by the National Wholesale Druggists' Association, of which each was an active or associate member. There was need for a new organization. This need developed and accentuated itself until in February 1912 this Association was born and named. That very same year it put its name in a report of the Committee on Ways and Means to the House of Representatives recommending the passage of the Sherley amendment, giving the approval of this association as one of its reasons. Of twenty odd bills relating to drug legislation pending before the committee, only two were reported, and these were the two suggested by the counsel of this association at a hearing upon all

Since then our association has put itself into the Congressional Record many times without ever seeking to do so. What is the secret? Simply this: This association has won the confidence of legislative committees and executive bodies for the impartial correctness of the information it has given and the soundness of the judgments it has expressed. It has pursued no other method than that of addressing the judgment and reason of its auditors. This need of pharmacy was never before met by any organization I know of. Thus we have adopted as our code that principle of legal ethics laid down by the American Bar Association, never to undertake to influence a legislative body or executive function in any other way or on any other theory than is followed by a lawyer of true ideals in a court of justice.

But is this not all a digression? I answer no. I relate this history to demonstrate that the American Drug Manufacturers' Association can never merge its identity—its individuality, in any confederation, and I believe the same is true of all the other organizations interested. However, I believe there is room for a confederation of these organizations upon a basis that will not deprive any association of its individuality, but will enable each to hold its meetings in the same place for different purposes.

Professor Wulling's address contained a recommendation that has not been mentioned here—that the confederation, when organized, localize itself, perhaps in Washington, perhaps in New York, in Philadelphia or in Chicago—some place to be decided upon; and there erect what I will

* The above is from the stenographer's notes of Mr. Charles M. Woodruff's verbal report to the American Drug Manufacturers' Association as fraternal delegate from that association to the American Pharmaceutical Association.

take the liberty of calling a Temple of Pharmacy. The professor did not name it. This temple should be the home of pharmacy in all of its branches; where we could all meet within our own gates; where the archives of our respective organizations could be preserved; where large reference libraries could be maintained. It is possible that Professor Lloyd might be willing to have his valuable library housed in a fireproof Temple of Pharmacy.

"Professor Wulling pointed out that his plan meant the initial investment of many hundred thousands of dollars; but he thought the amount could be raised in normal times; and I think so too. His address was the one distinguishing feature of the meeting. It will be as much of an epoch in the history of pharmacy as the gathering of five men at lunch during the Denver meeting of the American Pharmaceutical Association when regret was expressed that it seemed impossible for the several drug interests to get together on matters that interested all. On that occasion I told them how manufacturers dreaded being outvoted by meetings largely attended by representatives of local retail associations, and made the remark: 'Whenever you can devise a body that shall be composed of an equal number of delegates from each of the recognized national associations, and which shall be advisory only, the manufacturers will be with you.' Professor Beal, who was at the table, worked out the idea and presented it to the Association. The results were the National Drug Trade Conference—unique in the history of trade, scientific or professional organizations.

"Think of it! a conference meeting at Washington, deliberating upon a bill proposed by an eminent congressman, and doing so at his instance; amending and modifying it according to the consensus of the judgment of its members; then getting the approval of two of the departments to its amendments, and finally submitting a signed copy of the re-draft to be reintroduced by the same congressman as the bill of the Conference; and securing its passage in the house in the same week it was introduced! The Conference was as deliberative a body as framed the Declaration of Independence, or the Constitution of the United States, and yet a purely advisory body—a body in which we are not merged and yet of which we are members.

Do we not have in the National Drug Trade Conference the embryo, or perhaps the type of, a larger organization, which shall have its Temple of Pharmacy where we may gather annually instead of at the Waldorf-Astoria, and hold our meetings just as independent as we are now holding them, but in an atmosphere distinctly pharmaceutical, and with the feeling that we have the sympathetic interest of all other national pharmaceutical bodies meeting in the same place?"

COMMITTEE REPORTS

REPORT OF THE SPECIAL COMMITTEE ON COMPULSORY HEALTH INSURANCE.

CHICAGO BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The Special Committee on Compulsory Health Insurance which reported partially on February 23, 1917 (*JOUR. A. PH. A.*, 1917, pp. 315-317), herewith submits as its final report the following:

The Committee has considered the subject of health insurance with especial reference to the model bill known as "Standards and Tentative Draft of an Act" proposed by the American Association for Labor Legislation. In connection with this bill the committee has studied the various pamphlets advocating this plan of social insurance which have been issued from time to time by the American Association for Labor Legislation, the reports issued by the Council on Health and Public Instruction of the American Medical Association, and numerous articles appearing in various medical and pharmaceutical journals, and has also sought to obtain information concerning the operation and effects of health insurance systems in force in Germany, Great Britain and other European countries.

As a result of its studies the committee has arrived at the following conclusions:

(1) The standard bill discriminates unjustly between persons employed at manual labor and other wage earners. By the terms of the bill employees at manual labor are to be entitled to benefits regardless of the amount of their annual or monthly earnings, while all other wage earners are to be excluded from these benefits, unless their wage income is \$100 or less per month.

One result of this discrimination would be that an employee at other than manual labor who received even a very small amount in excess of \$100 per month, would be called upon to contribute to benefits for highly skilled mechanics whose annual income might be very much greater than his own.

(2) The standard bill is defective in that it does not make any distinction between illness or disability resulting from the fault or immoral habits of the wage earner or members of his family and that resulting from the nature of the employment, or which ensues without fault or neglect on the part of the insured employee or his family.

In the opinion of the Committee, innocent, industrious and sober employees should not be called upon to bear the expense of the illness or disability, or to contribute to cash benefits for those whose illness or disability is the natural result of their own vicious habits or immoral behavior.

(3) The standard bill is defective in that it does not make adequate provision for the care and treatment of the most necessitous classes of wage earners, namely, those known as casual employees—because their employment is occasional or irregular—and those who are described as self-employed persons—or those who gain a livelihood by the conduct of some small independent business of their own.

In the case of the casual employee the bill gives to the Social Insurance Commission the power to altogether exempt them from benefits. In the case of the self-employed individual it provides that he may insure himself voluntarily in the insurance funds, provided he can pass a satisfactory medical examination and pay the premiums. This means nothing to the self employed person, since he already possesses the privilege of insuring himself, provided he is able to pass a satisfactory examination and pay the premium.

(4) The bill is objectionable in that it places no limit whatsoever upon the amount of money that may be collected and expended for the purposes of health insurance. The proportions of the several contributions by employers, employees and the state are fixed, but not the amount which may be collected and expended so long as the proportions specified are adhered to.

In the opinion of the Committee it would be bad public policy to erect within the state a political instrumentality for the collection and expenditure of money—amounting to millions of dollars annually—without any other limitation upon the total sums to be collected and expended than the discretion of the individuals selected to administer the law.

(5) The standard bill is objectionable in that it empowers the Social Insurance Commission to establish and maintain as many branch offices, and to appoint as many officers, assistants and employees as it deems necessary, without any limitation upon this appointing power.

In the opinion of the Committee, it would be contrary to a sound public policy to confer upon any body created by legislative action the unrestricted right to establish branch offices and to appoint as many assistants and other employees as it might deem necessary.

(6) The bill is objectionable in that it does not provide any outside instrumentality to supervise the handling and care of the vast sums of money which would be collected and disbursed in the administration of the act.

In the opinion of the Committee it would be contrary to sound public policy to relieve the various boards and committees provided for in the bill from the supervision and control of the auditing and other supervisory agencies which the state imposes upon its various other fiscal agents who are charged with the collection and disbursement of public monies.

(7) The standard bill is objectionable in that some of its provisions are so loosely drafted that it is impossible to intelligently interpret them or to determine the manner in which they are to be applied. As an example we cite Section 56, which reads as follows:

"Medical Advisory Board. The State Medical Societies shall choose a Medical Advisory Board which shall be consulted on medical matters."

It will be observed that it is impossible to determine from this language either the number of members on the board or the length of time for which they are to hold office. Neither is there any specification as to the manner in which the board is to assemble, conduct its deliberations or deliver its decisions. It is equally uncertain whether the medical societies representing the various sectarian schools of medicine are each to elect an equal number of members to the medical advisory board, or whether their representation thereon is to be proportional to the number of members constituting the medical society.

Other portions of the bill are equally obscure and uncertain.

(8) The bill is objectionable in that it makes no provision whatsoever for the manner in which pharmaceutical, medical and surgical supplies are to be obtained.

From a study of the history of the evolution of the bill, and from statements of some of those who favor its enactment by the several states, there is reason to believe that it is contemplated that these supplies will be furnished to insured persons and their families through dispensaries established and maintained out of the insurance funds.

Since it is estimated that compulsory health insurance would provide for the medical requirements of 75 to 80 percent of the working population, there would naturally be a corresponding contraction in the demand for such supplies through the usual retail drug store. Believing as we do that the retail drug store is both a public necessity and a public convenience, we are of the opinion that such a discrimination against the retail druggist is unjust, especially when we consider that the proprietor as an employer would be required to insure his employees under the fund, and as a tax-payer would be compelled to contribute to the proportion of the expense which is to be borne by the state.

In this connection the committee has also made some effort to learn the effect of compulsory insurance upon the drug business in countries where such systems are in force, and where by means of positive provisions in the law efforts have been made to care for the interests of drug dealers.

As a result we have found that such dealers are very generally dissatisfied with the operation of the law. When they receive a portion of the insurance business, they are compelled to render services for which they receive but very little compensation, while those who receive little or none of the insurance practice have suffered a great contraction in the volume of their former business.

(9) The standard bill is objectionable in that it will tend to discourage self-help on the part of employees through voluntary insurance in trade unions and fraternal societies or in societies maintained jointly by the contributions of employees and employers.

While certain sections of the bill seem to authorize the insurance of wage earners in voluntary societies, it is apparent on closer study that the continuance of such societies is to be prevented or at least discouraged. The reason for this conclusion is found in the provision that an employer who contributes to such a society within his own establishment must, nevertheless, pay to the Social Insurance Commission the same amount as he would be required to pay if his employees were not thus voluntarily insured. There is also a further provision which permits the closing up of such societies if, in the opinion of the Social Insurance Commission, their continuance will endanger the success of the state insurance fund in any district.

It is the opinion of the Committee that the state should foster attempts at self-help on the part of wage earners rather than the contrary, and also that if a state subsidized system of insurance is unable to successfully compete with voluntary associations, then there is no reason why the state should attempt such functions.

In addition to the foregoing objections, which refer particularly to the provisions of the standard bill, the committee cites the following objections to any system of state subsidized compulsory health insurance:

(10) The claims of the advocates of compulsory health insurance that its establishment will improve the general health conditions of the community and diminish the mortality and morbidity rates, are disproved by statistics collected from countries where such systems of insurance are in force.

According to statistics collected by Mr. Frederick L. Hoffman, statistician for the Prudential Life Insurance Company:

"From the introduction of social insurance in the city of Berlin to the present time, the mortality rate at ages over ten years has practically remained unchanged. * * * Considered by quinquennial periods, there has practically been no perceptible change in the rate during the entire period since social insurance has been in operation, including insurance against invalidity. Evidence of this nature can neither be contradicted nor gainsaid.

"There has been a greater reduction in the tuberculosis death rate in this country than in Germany, regardless of the enormous governmental machinery serving social insurance purposes."

According to Mr. Hoffman the decrease in the tuberculosis death rate in Prussia was 51 percent in thirteen years, while in the same period the decrease in the tuberculosis death rate in Massachusetts was 57 percent.

Mr. Hoffman also shows that there has been a greater decrease in the mortality rates in New York City than in Berlin from tuberculosis, typhoid fever, diphtheria, and croup.

From the report of a commission especially appointed to consider the results of the insurance act in Great Britain the following statements are abstracted:

"The tuberculosis scheme cannot be regarded as a success. In all probability much better results would be obtained were the existing system of over-lapping control brought to an end and the whole responsibility vested in one public health authority. * * * The results of the act as regards sanatorium benefit are looked on as disappointing. The problem was largely miscalculated and the results fall far short of the expectations raised. * * * Most of the evidence was in favor of handing the whole treatment of tuberculosis to the public health authorities."

Much additional evidence might be cited tending to the same effect, namely, that there has been a greater improvement in morbidity and mortality rates in the United States than in the various European countries where compulsory insurance systems are in force.

(11) Compulsory health insurance in the United States would operate to the detriment of the professional independence and progress of the general medical profession.

It might be to the financial advantage of those securing employment under the act, either as panel physicians or as salaried officials, but this could only be at the corresponding disadvantage of physicians who did not obtain such positions.

In order that the whole body of physicians might profit by the enactment of such a law, it would be necessary either that the number of patients per physician should be increased, or if the sickness rate remain the same, that the rate of pay per patient should be increased.

To argue that the amount of sickness would be increased is to argue against the enactment of such a law. To argue that the average rate of pay per patient would be increased is to argue in opposition to experience. Wholesale business implies wholesale rates, and it would be foolish to assume that those in charge of the insurance funds would be willing to pay the same rates for the treatment of 500 families as would be expected in private practice, or that in arranging for medical services they would not make use of the economic force of competition among physicians.

(12) Compulsory health insurance would be detrimental to the medical profession because of the political competition for positions which would inevitably result. It is utterly foolish to assume that where positions differed in desirability there would not be political scrambles to obtain the more desirable ones; or that such competition could be carried on without political organization and all of the turmoil that political contests induce. To win, the contestants would have to be affiliated with the winning side, and that means "practical politics," and all that such affiliation implies.

(13) A system of compulsory health insurance would be inimical to the progress and improvement of the existing regularly constituted public health agencies. The new system would have behind it a powerful organization consisting of a multitude of officials and employees, and able to exercise tremendous pressure upon legislative bodies and the public administration of the state. With such an organization, constantly calling upon the legislature for new appropriations, the other public health agencies of the state would have to compete, with results that could only be disastrous to the weaker party.

(14) Compulsory health insurance could not fail to weaken the sense of personal responsibility and to lessen the efforts at thrift and providence of the wage earner. It is contrary to human nature to expect that those who feel that they will be provided for by the government will not let down in their efforts to make provision for themselves, with a consequent reduction in the moral stamina of the individuals concerned. Such a reduction in moral stamina is one of the acknowledged results of compulsory insurance in European countries.

(15) Compulsory health insurance would inevitably result in the production of a large number of discards among industrial workers, because it would make necessary the discarding of employees who were bad risks from the insurance standpoint.

One student of the subject has estimated that the number of such discards in the United States would amount to four millions or more, who would thus automatically pass from the list of those regularly employed into the classes of the unemployed, casually employed, or self-employed with a corresponding increased strain upon public charities.

(16) Compulsory health insurance would not only increase the normal rate of state taxation enormously,—perhaps two or three hundred percent—but would add very greatly to the cost of products manufactured by the insured industries.

It requires only an elementary knowledge of political economy to realize that burdens placed upon industries are eventually transferred to the ultimate consumer. Under health insurance both employer and employee could obtain partial recompense for their added expenses, the first by adding to the selling price of his product, and the second through medical benefits. But the ultimate consumer, who is neither employer nor employee, would have no such means of recoupment and would have to bear the burden alone.

(17) One effect of compulsory health insurance in European countries has been to increase malingering on the part of employees, that is, either the pretense of illness or the exaggeration of symptoms in order to secure benefits.

Statistics show this to be true beyond question, and that in Germany, for example, not only has the number of real or pretended cases of sickness very largely increased but also that the period of real or pretended disability has been very greatly extended under health insurance. Numerous competent observers have asserted these facts, and several have estimated "the number of impostors and those who intentionally exaggerate their symptoms as constituting not less than 50 percent of all cases."

Similar results have been noted in Great Britain and in other countries where these laws are in force. There is no good reason whatsoever to believe that the same result would not follow the introduction of the system into this country.

In conclusion. The Committee report that, in their opinion, a system of state subsidized compulsory health insurance is contrary to the fundamental ideals of the functions of government as hitherto interpreted in America, and of a self-reliant, progressive American citizenship. The Committee therefore recommends that the Chicago Branch of the American Pharmaceutical Association refuse to endorse the standard bill proposed by the American Association for Labor Legislation and, in case such legislation is proposed in the state of Illinois, that the members of this Branch, individually and collectively, take an active part in seeing that the general public, and especially tax-payers, wage earners, and members of the medical profession and of the drug trade shall be fully informed of the dangers of state subsidized compulsory health insurance and of the results that have followed the establishment of such insurance in other countries.

Respectfully submitted,

J. H. BEAL, *Chairman,*

BERNARD FANTUS,

J. H. WELLS,

Committee.

REPORT OF THE COMMITTEE ON DRAFTING A MODEL FOR A MODERN PHARMACY LAW, AMERICAN PHARMACEUTICAL ASSOCIATION.*

Your Committee at this time presents what it would designate to be a Preliminary Draft. In taking up its task the Committee has been mindful of the work of the Voluntary Conference which was created under the auspices of the Section on Education and Legislation and which proposed a number of new features, very generally meeting with the approval of the State boards and State associations represented therein. It is our understanding that proper further consideration shall be given to the wishes of the Voluntary Conference in the final completion of our work. We would make plain that none of the features contained in the Preliminary Draft have met with final approval, and that as to some there is at present a difference of opinion in the Committee. We believe it possible only to arrive at the best conclusions at a conference where the Committee members can discuss every feature and then decide upon its desirability and such conference will be our aim.

In submitting this preliminary and unfinished draft we have the thought to profit from discussion and criticism which may take place at this meeting and which we earnestly solicit.

* A general discussion followed the presentation of each Section discussed, and at the conclusion of the discussion a vote of thanks was tendered the Committee for their painstaking work, and the body recommended the continuance of the Committee. Chairman Freericks expressed the opinion that the final report on the draft would be presented at the next meeting. The analysis and draft are printed so that all members may study the provisions.

Likewise, we hope to profit from publication and discussion in the Pharmaceutical Press, and if possible in the Medical Press. In order that there may be no misunderstanding as to the scope of our work, we would explain that we mean it to be purely a model. It is not within our sphere to present a draft which can be certainly enacted to-day or to-morrow, in the different States, but rather to present one which we know with due regard for the public welfare should be enacted. We realize that conditions in different States may not be opportune for securing such pharmaceutical legislation as should now exist, but we believe that with a proper model there can be a gradual, if not an immediate, accomplishment. Therefore, we would say to the critic who agrees that our aim is correct, but not possible of practical attainment, that we are concerned only in having the correct aim, and that we must leave to the future which inevitably works toward correctness and improvement, the desired practical attainment.

In order to serve a more ready appreciation of the scope of this Preliminary Draft, we offer the following abstract of its more important features

First, It provides that at least a majority of pharmacy board members shall be graduates in pharmacy.

Second, That the pharmacy board shall in conjunction with a drug commissioner to be appointed by it, be charged with the enforcement of all laws pertaining to pharmacy, inclusive of the compounding, distribution, purity and sale of drugs.

Third, That all persons engaged in compounding, selling or distributing potent drugs and poisons at retail, shall prove qualification, and shall be registered by the board of pharmacy.

Fourth, A more definite status of the rights of the assistant pharmacist is sought; the physician and veterinarian, who would compound and dispense his own medicines must prove his qualification to practice pharmacy, and to that extent is to be under the supervision of the board of pharmacy; the so-called drug dealer is to exist only where reasonable public needs require his existence, and he is to show at least some qualification. The provisions which concern the physician and the drug dealer, that is, to show qualification, are not to be applicable to those physicians and drug dealers who at present may be qualified because of practical experience, and such practical experience shall entitle them to registration, in order to meet the objection which otherwise would be insurmountable.

Fifth, It does not seek to interfere with the present practice of the physician, dentist or veterinarian to supply emergency drug needs when personally administered in an emergency.

Sixth, Preliminary educational requirements and the so-called prerequisites are provided for. Academic degrees are required from those who in the future would occupy the chairs of pharmacy, chemistry and materia medica, in colleges of pharmacy. Apprentices are to be registered when they enter their apprenticeship. Reciprocal registration is provided for. Requirements for recognition as colleges or schools of pharmacy are sought. Membership in an association of state boards of pharmacy is sought to be put upon a legal basis, and the necessary support for maintaining such an association is provided for.

Seventh, Suspension and revocation of certificates for cause inclusive of a proper right of appeal from the decision of the board.

Eighth, Definitions for poisons and for potent drugs under which it will be the duty of the board of pharmacy from time to time, to enumerate all poisons and all potent drugs, publishing lists of the same, with provision for a proposed appeal from the decision of the board.

Ninth, All poisons and potent drugs as enumerated either in the Act or in publications of the board are to be labeled, showing poison or potent drug content, but when dispensed by or on the order of a physician, dentist or veterinarian, to either show such content, or to be subject to ready identification by number or mark corresponding with a number or mark on a written record of the content.

Tenth, Drugs and medicines compounded and manufactured under the laws of other States not requiring a publication of poison or potent drug content, when offered at retail, to be under the supervision of the board of pharmacy, whose duty it shall be to determine poison and potent drug content, and who shall then publish lists of such articles, and aside from the label requirement all of the other provisions governing the sale and distribution of poisons and potent drugs, shall then be applicable after such publication.

Eleventh, The Act is intended to include the N. A. R. D. Model for an Anti-narcotic Law.

Twelfth, The Act is intended to include a Pure Drug Law, based upon the provisions of the Federal Act.

Thirteenth, Throughout it has been the aim, aside from matters pertaining to drug adulteration, to seek control primarily over all persons who at retail would sell and distribute poisons and potent drugs. It will be observed that the classification of drugs which are to be considered of a potent character is sufficiently broad, to include all which in the hands of unqualified persons may endanger health and life. The primary thought is, to protect the public whose welfare should be our first aim. A complete copy of the preliminary and unfinished draft is attached hereto.

Respectfully submitted,

FRANK H. FREERICKS, *Chairman*,
WILLIAM C. ANDERSON,
H. V. ARNY,
JAMES H. BEAL,
CHAS. H. HUHNS.

PRELIMINARY PARTIAL DRAFT OF AMERICAN PHARMACEUTICAL ASSOCIATION MODEL PHARMACY LAW.

AN ACT TO REGULATE THE PRACTICE OF PHARMACY, ETC.

SECTION 1: Definition

SECTION 2: There shall exist and be maintained within the State a State Board of Pharmacy with duties and powers as hereinafter defined and provided. The State Board of Pharmacy shall consist of five (5) members, and the now existing State Board of Pharmacy heretofore appointed, shall continue in office and act as the State Board of Pharmacy with all the duties and powers as herein provided until the terms of its present members, respectively, expire, the vacancies as they annually occur to be filled in keeping with the requirements of this Act. Hereafter in making appointments to the State Board of Pharmacy the appointees shall have been Registered Pharmacists under this or some former law of the State, for a period of at least ten (10) years, and they at the time of their appointment shall be engaged in conducting a retail pharmacy. At least three (3) members of the State Board of Pharmacy shall be graduates of a, by this State, recognized college or school of pharmacy, and if the now existing State Board of Pharmacy is not so constituted the first occurring vacancies of the State Board shall be filled with appointees meeting such qualification, except in the case of re-appointment of present members, and such qualification for at least three (3) members of the Board shall thereafter be maintained. Members of the Board of Pharmacy to be appointed under this Act, shall be appointed by the Governor and shall serve for a term of five (5) years, or until their successors are appointed, and have duly qualified. Vacancies occurring in the Board of Pharmacy shall be filled for a term shall be filled for the unexpired term only. The members of the Board shall be paid ten (\$10.00) dollars *per diem*, and their necessary expenses while actually engaged in the performance of the duties of the Board. Annually, the State Pharmaceutical Association may from among its membership nominate five (5) candidates for the next occurring vacancy on the Board of Pharmacy, who shall meet the requirements as herein provided, and, from among the nominees when regularly submitted and certified by the president and secretary of said State Association, or from others having the necessary qualifications, the Governor shall make his appointment for vacancies occurring in the Board of Pharmacy. Appointees to the Board of Pharmacy shall within ten (10) days after their appointment, take and subscribe an oath or affirmation before a properly qualified officer, that they will faithfully and impartially perform the duties of their office, which oath or affirmation shall be filed with the Secretary of State. The State Board of Pharmacy shall have a president, vice-president, secretary and treasurer, all of whom shall be elected annually, from among their number, except the secretary. The officers of the existing Board shall continue to so act until their terms, for which they have been elected, expire.

SECTION 3: Duties and compensation of Secretary and Treasurer.

SECTION 4: It shall be the duty of the State Board of Pharmacy through officials and employees appointed by it, or under its supervision for that purpose, to enforce all laws of the State now or hereafter enacted, which pertain to the practice of pharmacy, manufacture, production, sale or distribution of drugs, chemicals and poisons, and to their standard of purity.

SECTION 5: There is hereby created the office of a State Drug Commissioner, who under the jurisdiction and supervision of the State Board of Pharmacy, on his own authority as such, is directly charged with the enforcement of all laws as provided in Section 3, subject to the control of the Board. The State Drug Commissioner shall be appointed by the State Board of Pharmacy for a term of five (5) years at a salary of \$—— per annum. The State Drug Commissioner immediately prior to his appointment shall have been engaged in the practice of pharmacy for at least ten (10) years, he shall be a graduate of a college or school of pharmacy, recognized under the laws of this State, and shall be chosen with due regard for his knowledge of chemistry and of his executive ability. Vacancies in the office of the State Drug Commissioner shall be filled by the Board for the unexpired term. The State Drug Commissioner shall employ all necessary chemists, agents and clerical help, for the proper conduct of his office, as may be from time to time determined by the State Board of Pharmacy, and all of his appointments shall be passed upon and approved or disapproved by the State Board of Pharmacy at its next regular session after the appointments are made. The State Drug Commissioner shall report to the State Board of Pharmacy at all its regular sessions.

SECTION 6: The State Board of Pharmacy shall meet at least four (4) times a year in the City of ———, or at such other place within the State as it may designate at any regular session, as an Examining Board, and for the purpose of supervising the office of the State Drug Commissioner. As an Examining Board it shall examine all persons in the art and science of Pharmacy and its allied branches, who meet the necessary qualifications as herein provided and who make application for registration as Pharmacist, Assistant Pharmacist, Medical or Veterinary Dispensers and Drug Dealers.

SECTION 7: The compounding, manufacture, sale and distribution of drugs and medicines at retail when of potent or poisonous character as defined in this Act, shall be limited exclusively to persons who are registered for that purpose under the provisions of this Act, provided that all persons heretofore and now registered within this State as Pharmacists or Assistant Pharmacists, shall have all the rights which are granted to Pharmacists and Assistant Pharmacists under this Act when complying with the requirements thereof as hereinafter set out; and, provided further, that nothing contained in the Act shall be construed to prevent the personal administration of drugs and medicines carried or kept for emergencies, by licensed dentists, physicians and veterinarians, in order to supply the immediate needs of their patients while in their presence. For the purposes of this Act there shall be and are hereby made provisions for the registration of Pharmacists, Assistant Pharmacists, Medical and Veterinary Dispensers and Drug Dealers, each having the rights hereinafter provided, and being subject to the limitations and restrictions as respectively made.

(a) A Pharmacist shall have the right to conduct a pharmacy for the compounding of medicines upon physicians' prescriptions, and for the manufacture, sale and distribution of drugs, medicines and poisons.

(b) Assistant Pharmacists shall have the right to do all things that may be done by a Pharmacist, in a pharmacy or place of business, conducted under the supervision of a pharmacist. Supervision as herein required shall not permit the absence of a Pharmacist for more than one (1) day within each separate week.

(c) Medical or Veterinary Dispensers, who must also be by this State licensed physicians or veterinarians, shall have the right only to compound and dispense medicines which they prescribe for persons or animals under their medical treatment, and such compounding and dispensing shall be strictly incident to the practice of medicine and veterinary medicine.

(d) Drug Dealers when conducting fixed places of business at least ——— miles distant from a pharmacy, shall have the right to distribute and sell potent drugs and medicines, and poisons as compounded and prepared under the supervision of pharmacists registered in this or other States when properly labeled under the name of a Registered Pharmacist, known wholesale dealer or manufacturer of drugs and chemicals. A drug dealer having established a fixed place of business under the law shall be privileged to continue the same notwithstanding pharmacies are subsequently established within the ——— mile zone, but when disposing of his place of business shall be subject to the restrictions herein provided in establishing a new place of business.

SECTION 8: Applicants for registration as Pharmacists, Assistant Pharmacists, Medical or Veterinary Dispensers, or Drug Dealers, shall before being admitted to examination meet the following preliminary requirements, proof of which must be first filed with the secretary of the Board under rules and regulations adopted by it:

(a) Applicants for registration as Pharmacists, shall be not less than twenty-one (21) years of age, and shall be graduates of a recognized college or school of pharmacy; they shall have at least four (4) years of practical experience in a drug store or pharmacy where physicians' prescriptions are compounded, provided that not more than two (2) years of credit in meeting such requirement may be given for attendance of at least two (2) full school years at a recognized college or school of pharmacy; they shall have to give proof of a preliminary general education equal to eight units as given in a high school of the State.

(b) Applicants for registration as Assistant Pharmacists shall be not less than eighteen (18) years of age, and shall have at least two (2) years of practical experience in a drug store or pharmacy, where physicians' prescriptions are compounded, provided, that a credit of one (1) year in meeting such requirements may be given for attendance of not less than one (1) full school year at a recognized college or school of pharmacy; they shall meet the same general educational requirements as provided for pharmacists.

(c) Applicants for registration as Medical or Veterinary Dispensers shall give proof that they are registered under the laws of the State as Physicians or as Veterinarians.

(d) Applicants for registration as Drug Dealers shall be not less than twenty-one (21) years of age, and shall give proof of having attained at least a common school education entitling them to entrance of a high school in the State.

SECTION 9: Applicants for registration as Pharmacists and as Assistant Pharmacists shall, to prove their respective requisite knowledge, be examined to a proper varying degree in the subjects of chemistry, botany, materia medica, toxicology, and the theory and practice of pharmacy. Applicants for registration as Medical or Veterinary Dispensers shall be examined in the theory and practice of pharmacy, the scope of such examination to be like that which applicants for registration as Assistant Pharmacists are required to pass. Applicants for registration as Drug Dealers shall be suitably examined in physics and toxicology. Provided, however, that all registered physicians and veterinarians of this State, who, when this Act takes effect, have been accustomed to compound and dispense the medicines which they prescribe for their patients, may on application to the Board of Pharmacy within ninety (90) days from that date, upon affidavit, setting out such fact, become registered without examination as such Medical or Veterinary Dispensers and Drug Dealers, who prior to, and at the time that this Act takes effect, have been engaged as such within the State, may within ninety (90) days from that date become registered as such without examination, upon application to the Board of Pharmacy, giving satisfactory proof.

SECTION 10: Persons who hereafter desire to engage in pharmacy, with a view of becoming registered as Assistant Pharmacist and as Pharmacist, shall, upon entering employment in a pharmacy, register as apprentices with the State Board of Pharmacy, and for all such persons the requisite practical experience shall be determined from the date of registration. A fee of fifty cents (50 c.) shall accompany an application for registration as apprentice. A person who before or after this Act takes effect may have served part of his apprenticeship in some other State not requiring such registration shall give proof of such service satisfactory to the Board. Persons who for more than six (6) months immediately

prior to the time when this Act becomes effective, have been employed in a retail pharmacy, with a view of becoming registered as an Assistant Pharmacist or as a Pharmacist, shall for the purpose of registration as such, be by the Board required to meet the provisions of the law as they existed immediately prior to this Act becoming effective.

SECTION 11: It shall be unlawful for any person to impersonate an applicant before the State Board of Pharmacy applying for registration under the provisions of this Act. Any person violating this Section shall be guilty of a misdemeanor, and, upon conviction, shall, pay a fine of not more than one hundred (\$100.00) dollars, or be imprisoned for not more than six (6) months, or either, or both, in the discretion of the court.

SECTION 12: Persons desiring to enter a college or school of pharmacy shall give proof of the required general education prior to admittance thereto. The necessary proof of an entrance examination shall consist either of certificates issued by the proper school authorities, or in successfully passing an examination before an Entrance Examiner, appointed by the Board for that purpose, at suitable compensation to be allowed by the Board. The Entrance Examiner, under the authority of the Board, shall issue to such persons applying therefore a certificate of preliminary education.

SECTION 13: The State Board of Pharmacy shall recognize as such, Colleges and Schools of Pharmacy which require for graduation a course of studies covering a period of not less than fifty (50) weeks of actual instructions, occupying two (2) school years, with a vacation period of at least two (2) months, between such two (2) school years. Each school year shall cover at least two hundred and fifty (250) hours of class-room instructions and three hundred and fifty (350) hours of individual laboratory practice, including at least the work outlined by the Pharmaceutical Syllabus of 1913. It shall further be required for recognition that at least the professors of pharmacy, chemistry, and materia medica, teaching in such school or colleges of pharmacy, shall hold the degree of B.A. or B.Sc., provided, that this requirement shall not apply to professors of pharmacy, chemistry, or materia medica, who are teaching as such in colleges or schools of pharmacy when this Act becomes effective.

SECTION 14: The State Board of Pharmacy may in its discretion grant certificates of registration as Pharmacist or as Assistant Pharmacist, to persons who furnish proof that they have been registered as such by examination in some other State, and that they are of good moral character, provided, that such other State in its examinations requires the same general degree of fitness as is required by examination in this State, and that the applicant qualifies in all other respects as is required for registration by examination in this State, excepting that persons who have become registered by examination in other States, prior to the time that this Act takes effect, and who have continuously thereafter been engaged in pharmacy, shall be required to meet only the requirements which existed in this State at the time when they became registered in such other State, and provided further, that such other State or States in like manner grant reciprocal registration to Pharmacists and Assistant Pharmacists of this State. Applicants for reciprocal registration in this State shall defray all necessary expense for making an investigation of their character, general reputation and pharmaceutical standing, in the State where they have resided, such expense not to exceed the sum of ten (\$10.00) dollars.

SECTION 15: The State Board of Pharmacy, in order to be informed and to determine the status of Boards of Pharmacy of other States desiring reciprocal registration, and in order also to be advised regarding the progress of pharmacy throughout the country, shall annually select one of its members to meet at the expense of the Board, to be allowed out of its appropriation, with like representatives from other State Boards of Pharmacy. At such meetings, when arranged, there shall be discussed the degree of fitness for registration which is required by the several State Boards of Pharmacy. Such representatives of the several State Boards of Pharmacy may adopt rules and regulations, which shall guide the several Boards in the matter of reciprocal registration, but abidance with such rules and regulations as may be proposed at annual conferences shall be optional and at the discretion of the State Board of Pharmacy. The State Board of Pharmacy through its representatives may with like representatives from other State Boards of Pharmacy join in

creating and maintaining an association of representatives of the several State Boards of Pharmacy, to be engaged in the general advancement of pharmacy and the keeping of records pertaining to reciprocal registration of pharmacists, and at its discretion the Board may give to such Association information which it possesses relating to such aims and objects. The State Board of Pharmacy at an expense not to exceed one hundred (\$100.00) dollars per annum may subscribe for and secure the service of an association engaged in the compilation of pharmaceutical information, knowledge and progress, specially adapted to secure efficiency in the work of the Board.

SECTION 16: Applicants for examination as Pharmacists shall pay an examination fee of five (\$5.00) dollars; applicants for examination as Assistant Pharmacists, Medical or Veterinary Dispensers, and as Drug Dealers, shall pay an examination fee of three (\$3.00) dollars. Certificates of registration shall be issued to Pharmacists on payment of a fee of ten (\$10.00) dollars, and to Assistant Pharmacists, Medical or Veterinary Dispensers, or Drug Dealers, on payment of a fee of five (\$5.00) dollars. Certificates of Preliminary Education shall be issued at a fee of three (\$3.00) dollars. Applicants for reciprocal registration as Pharmacists, in addition to the fee covering costs of investigation, shall pay a fee of \$—— and Assistant Pharmacists a fee of \$——. All fees shall be paid to the State Board of Pharmacy, and by it covered into the State Treasury.

SECTION 17. The registration of any Pharmacist, Assistant Pharmacist, Medical or Veterinary Dispenser, or Drug Dealer, may be suspended or revoked by the Board of Pharmacy, when the registration is proved to the Board, to have been obtained by fraudulent means, or when the registrant has been convicted of a felony or is found by the Board to be guilty of gross immorality, or to be addicted to the liquor or drug habit to such a degree as to render him unfit to compound, sell or distribute drugs and medicines. Suspension or revocation of a certificate shall be only after due notice and hearing, and for the purposes of such hearing the Board or any member thereof is authorized to examine witnesses under oath and to take oaths or affirmations, and to reduce the testimony given in any such case to writing. Within thirty (30) days after the suspension or revocation of a certificate of registration, the registrant may take an appeal to any court of record of the State, of competent jurisdiction, and pending such appeal the decision of the Board shall be suspended until the court renders judgment which shall be final in the case, and if the decision of the Board is not sustained, the registrant shall be re-instated.

SECTION 18: There shall be kept in every pharmacy and in every medical or veterinary dispensary a copy of the latest revision of the U. S. Pharmacopoeia and the latest revision of the National Formulary, and if Homeopathic remedies are compounded and dispensed, a copy of the latest revision of the American Homeopathic Pharmacopoeia or Homeopathic Pharmacopoeia of the U. S., which books must be open to the inspection of the Board of Pharmacy, the Drug Commissioner and their properly authorized agents or employees. Any person violating this Section shall, upon conviction, be fined the sum of ten (\$10.00) dollars and the costs of prosecution.

SECTION 19: All certificates as Pharmacists and Assistant Pharmacists, Medical or Veterinary Dispensers, and Drug Dealers, shall at all times be conspicuously displayed in the place of business or dispensary where the registrant is engaged as such. Any registrant violating this Section shall, upon conviction, be fined to pay the sum of ten (\$10.00) dollars and the costs of prosecution.

SECTION 20: Registration of place annually.

SECTION 21: The Board of Pharmacy shall make, from time to time, uniform rules and regulations, which are to govern it and the Drug Commissioner and all employees in the enforcement of this Act. It shall prescribe, publish and furnish all application forms for registration, which are required under this Act.

SECTION 22: It shall be unlawful for any person who is not a registered Pharmacist, registered Assistant Pharmacist, registered Medical or Veterinary Dispenser, or Drug Dealer, or who is not under the direct and immediate supervision of either of such registrants operating within their lawful spheres, to compound, manufacture, sell or distribute at retail any potent drugs or poison as hereinafter defined, excepting only, that this provision

shall not apply to the sale of drugs and poisons when intended for agricultural, technical and industrial use, and shall not apply to the personal administration of drugs and medicines by dentists, physicians and veterinarians in keeping with Section 7 of this Act. It shall be unlawful for Medical or Veterinary Dispensers to compound, sell and distribute potent drugs or poisons, except for use by bona fide patients, who are under their medical treatment. It shall be unlawful for any Drug Dealer to compound or manufacture Potent Drugs, poisons or preparations containing the same, and it shall be unlawful for such Drug Dealer to sell or distribute potent drugs and poisons, except in original packages as prepared by and under the supervision of a registered Pharmacist of this or some other State, properly labeled to meet all requirements of the law, and bearing the name of the original distributor or manufacturer. Any person violating the provisions of this Section shall be guilty of a misdemeanor, and upon conviction thereof shall be sentenced to pay a fine of not less than fifty (\$50.00) dollars, nor more than five hundred (\$500.00) dollars, or to imprisonment for not more than one (1) year, either, or both, in the discretion of the court.

SECTION 23: (A) The term poison shall include the compounds and salts of antimony, arsenic, _____ etc., and shall include all compounds, combinations, mixtures and preparations of the same, which contain more than one (1) adult medicinal dose of said substances in each one-half fluid ounce, if liquid, and one-half avoirdupois ounce if solid, of such compounds, combinations, mixtures and preparations, or when in the form of capsule, pill, tablet, powder or other like sub-divisions there is contained more than one adult medicinal dose in two or less of such capsules, pills, tablets, powders, or other like sub-divisions. The term poison shall further include all substances of which an adult medicinal dose when in original form is less than two grains if solid, and less than two minims if liquid, and the compounds, combinations, mixtures and preparations thereof, when more than one adult medicinal dose is contained in one-half fluid ounce if liquid, and one-half avoirdupois ounce, if solid, or when in capsule, pill or tablet, powder or like sub-division more than one such adult dose is contained in two or less of such sub-divisions.

(B) The term potent drug shall include all poisons as defined in sub-section (A) hereof, and all preparations containing more than five percent (5%) of alcohol by volume when intended for medicinal use, and shall further include all substances, the adult medicinal dose of which is less than sixty (60) grains, if solid, or sixty (60) minims, if liquid, and all compounds, combinations, mixtures, and preparations thereof, which contain more than an adult medicinal dose in each fluid ounce, if liquid, and each avoirdupois ounce, if solid, or when in capsule, pill, tablet, powder or other like sub-division more than one adult dose is contained in less than ten (10) of such sub-divisions.

(C) It shall be the duty of the State Board of Pharmacy to determine from time to time the adult medicinal dose of all substances, which are not specially named as poisons or as potent drugs, and which are to be determined as such by their dosage, and having so determined such other poisons and potent drugs, the State Board of Pharmacy shall publish lists of such other poisons and potent drugs so determined, and after ninety (90) days from date of such publication such poisons and potent drugs shall be delivered, dispensed and sold, only as may be provided by law. Within ninety (90) days after publication of what the State Board of Pharmacy determines to be a poison or potent drug, on the basis of the adult dose thereof, any person interested in such determination may apply for a hearing before the Board to submit proof that such determination with reference to any particular substance, compound, combination, mixture, or preparation, is erroneous, and if the Board becomes so satisfied, it shall rescind its order and publication with reference to such particular substance or substances, compound, mixture or preparation. In case the Board decides against the complainant, he shall have the right within thirty (30) days to appeal to any court of record having jurisdiction, for a review of the decision of the Board, and it shall act in compliance with the order of the court on final adjudication, and pending such final adjudication the determination of the Board with reference to the substance or substances, combination, compound, mixture or preparation, shall be held in abeyance.

SECTION 24: All chemicals, drugs, their compounds and preparations when of poisonous or potent character as defined in this Act, and when dispensed, distributed, or sold at retail to the consumer, except in original packages as manufactured and put up outside of the State in keeping with the laws of some other state or country, shall be in containers bearing a label for ready inspection, upon which such poisonous or potent drug content is plainly shown, as also the percentage thereof, contained therein. Provided, that when such chemicals and drugs are dispensed in keeping with a written record as made by a registered physician, dentist or veterinarian, and such written record is retained or filed by a pharmacist, physician, dentist or veterinarian, for at least one (1) year, the label requirement herein shall be satisfied when the container of the chemicals and drugs so dispensed bears a number or mark corresponding with a number or mark on the written record, so that it may be readily identified. Whenever chemicals and drugs, their compounds and preparations, manufactured outside of the State are dispensed, distributed or sold in original packages at retail to the consumer, without meeting the label requirements herein provided, it shall be the duty of the State Board of Pharmacy, by, and with the assistance of the State Drug Commissioner, to determine poisonous or potent drug content as herein defined, and upon such determination it shall list and publish the article under the name given it by its producer or manufacturer, as of either such poisonous or potent drug content, and thereafter such article shall be dispensed, distributed or sold, at retail within this State, only in compliance with the other provisions of this Act.

SECTION 25: Whoever knowingly sells or delivers to any person otherwise than in the manner prescribed by law, any poison or potent drug as defined in this Act, or sells or delivers in the manner otherwise prescribed by law any poison as defined in this Act, but without the written order of an adult, to a minor under sixteen (16) years of age, shall be fined not less than ten (\$10.00) dollars, nor more than fifty (\$50.00) dollars for each offense.

SECTION 26: Whoever sells or delivers to any person a poison as defined in this Act, except upon the written record of a registered physician, dentist or veterinarian, made and kept as provided in this Act, without having first learned by due inquiry that such person is aware of the poisonous character thereof, and that it is desired for a lawful purpose, or without plainly labeling the word "POISON," and the names of two or more antidotes therefor, upon the box or package containing it, or delivers such poison without recording in a book kept for that purpose for which it is alleged to be used, the date of its delivery, and the name and address of the purchaser, and the name of the dispenser, or fails to preserve said book for five (5) years, and submit it at all times for inspection to proper officers of the law, shall be fined not less than ten (\$10.00) dollars nor more than fifty (\$50.00) dollars for each offense.

SECTION 27: In this Section and its necessary Sub-Sections, are to be included the N. A. R. D. Model for a Narcotic Law.

SECTION 28: In this Section and its necessary Sub-Sections, are to be included the provisions of a Pure Food Law as based upon the terms and requirements of the Federal Food and Drugs Act.

THREE INJUNCTIONS.

First: Find yourself. Find who you really are and what you like best. Know your weak points and your strong ones. Only by knowledge of our weaknesses and constant effort can we overcome our failings. Find what you really want to be. Determine what you really want to be. Determine what you are naturally best adapted to do. Don't be misled by false glitter or another's success in a different occupation. Find your groove, your talent, and stick to it. Find yourself!

Secondly: Save yourself. Be careful of your physical being. Your health is a fortune and should be guarded more closely than your dearest possession. Learn economy of steps, of motion, of time. Be physically fit for any reasonable demand on your strength. Then go about your daily work with vigor, with enthusiasm, with pleasure. Save yourself.

Lastly: Give yourself. Give the world the best on your part. Don't expect to give a second-class article and receive pure gold. One's mind grows by sharing as well as does one's character.

—W. H. CLEMENS.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

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Editorial Office: 253 Bourse Building, Philadelphia, Pa.

MAJOR D. A. COSSAR COMING TO THE UNITED STATES.

The Editor is in receipt of a communication from Mr. C. L. Butchers, Secretary of the Pharmaceutical Society of Australasia, which is of interest to pharmacists of this country. He writes:

"You will remember that I wrote you some three or four months ago relative to the proposed visit of Major Cossar to America. No doubt you have been wondering when Major Cossar will arrive in the United States. Up to the present time he has been in London and I ascertained to-day that he is likely to leave there for America about the end of March. I thought I would take the first opportunity of advising you so that you may have some idea of his arrival in your country.

"You will be pleased to hear that while Major Cossar was in London he succeeded in inducing the British War Office to grant twenty-one commissions to pharmacists in active service in France and Egypt. You will also be interested in the editorial in the February issue of the 'Australasian Journal of Pharmacy,' wherein reference is made to the satisfactory result of the investigation by a Royal Commission into the affairs of the Defence Department."

Pharmacists of the United States will be glad to welcome Major Cossar, and we may hope that he will have information to give us that will be helpful in our promotion of a Pharmaceutical Corps for the U. S. Army.

ORGANIZATION AND WORK OF PHARMACISTS IN FOREIGN ARMIES.

Caswell A. Mayo, speaking before the Committee on Military Affairs of the House on the subject assigned him, said in part, as follows:

"Pharmacists rank as commissioned officers in the armies of all the countries except those of the United States and a part of those of Great Britain, for by a singular anomaly, some

of the Canadian pharmacists have been given commissions and the Australian army has a regularly organized corps of commissioned pharmacists with a major at its head, while under the title of quartermaster England herself has commissioned some pharmacists.

"In the French army the head of the corps is the brigadier-general. He is, or before the war was, a colonel in the German, the Japanese, and the Spanish armies. He is a lieutenant-colonel in the armies of Italy, of Belgium, of Holland and of Austria; he is a major in the armies of Switzerland, of Norway, of Sweden, and of Australia, for, notwithstanding the fact that the Australian troops are part of the British army they maintain a separate organization, which, in this respect at least does not conform with that of the mother country.

"The history of the Medical Department of the United States Army, compiled by Assistant Surgeon Harvey E. Brown, under the direction of the Surgeon-General, shows that from the organization of the Continental Army in 1775 down to 1821, the United States Army was provided with an Apothecary General as well as with a Surgeon-General, and that the Apothecary General and his assistants were specifically charged with the provision, testing, and distribution of medical and surgical supplies. In the year 1821 all the regimental surgeons were done away with as well as the Apothecary General and his assistants under a régime of most searching economy, consequently the recognition of pharmacy in the United States Army by the introduction of such a corps as we propose would really be returning to first principles and not to a novelty as many think."

THE MEDICAL DEPARTMENT OF AN ARMY OF FIVE MILLION MEN.

It has been stated by authorities on the subject that an army of five million men will be required of the United States; probably

no less than an army of half that number has been spoken of by anyone familiar with the needs of the situation. If this is the case, upwards of 30,000 medical men will be called for. The most conservative will admit that qualified pharmacists can relieve the doctors of some of their work, or that which they now must do. Dr. J. Madison Taylor, of the Medical Department of Temple University, in speaking before the Committee on Military Affairs of the House, prefaced his remarks by saying:

"We physicians who appear before your committee would count ourselves blameworthy in advocating the establishment of a Pharmaceutical Corps in the military service, did we not believe on good authority we were rendering an important service to the Nation and the Nation's defenders."

Later in his able presentation, Dr. Taylor said:

"Among the particular services a specially educated pharmacist could render are these:

"He could supplement and contribute to the correlating data for the surgeon, in short in the 'paper work.'

"He could perform a large part of the clinical laboratory work. Urinalyses, blood examinations (morphologic or pathologic), in Cytology, Serology, Vaccine preparations, Bacteriology in the preparation of microscopic slides; in the examination of gastric contents, feces, exudates, transudates, and the like.

"He could apply tests such as Wassermann, Noguchi, Widal, etc., all chemical procedures; he could keep all the material for these tests up to date.

"He could supplement in X-ray work; keep the mechanism of Roentgenology in order, print plates, etc.

"Many chemical problems arise in connection with poison cases. He could prepare all special materials for such procedures as hypodermoclysis, blood transfusion, Carrell-Dakin solution, etc. He could examine water, water supplies, all articles of food and drink, milk, meats, and the like, which must be critically estimated.

"Those who desire to become candidates for military service are already seeking instruction and experience in meeting minor surgical and medical emergencies, in the dressing of wounds, in the adjustment of dressings, solutions.

"One surgeon and two pharmacists could

probably do as much good work as two or even three surgeons.

"The claim is made by the opponents of the Pharmaceutical Corps that the medicines or drugs used in the army are very simple and few, and served mostly in tablet form, readily handed out by any bright, alert enlisted man selected and trained for the purpose. How about the poisons? How many blunders are made by such an elementary form of dispensing? Full knowledge of the properties of death-dealing chemicals is an absolute essential for the man who handles them.

"I have been credibly informed that the official Army Drug Table authorized by the Secretary of War comprises nearly 600 drugs and drug products of all kinds, *including poisons of the deadliest character*. Also that this drug table or list is admitted to be only the 'minimum number of articles essential to the Nation's Medical activities.'

"Obviously the preparation, compounding, and especially the dispensing of such dangerous products demands trained pharmacists. Note the gravity of this problem, the hideous peril run by our home defenders by such haphazard distribution.

"How many fatal blunders have occurred? How can the surgeon keep control of the leaks in the chain of procedures from bottle to patient? How many curious inexplicable cause of deaths?

"Should an error be suspected by the enlisted man who dispenses poisons, there is every temptation to keep quiet and thus escape blame. Clearly our home defenders deserve fully as much special skill in the distribution of drugs as do our home makers."

MILITARY MORALS.

One of the uses of the proceeds of the Liberty Loan that will appeal strongly to the great mass of American people is the care and attention given to the moral welfare and protection of the American soldiers.

It is to the glory of American arms and American national character that of the men who wear the United States uniform a high standard of conduct is expected and demanded, and provided for. Kipling's "Single men in barracks" are not to find their prototypes in the American Army.

Gen. Pershing says there is no cleaner-living body of men in the world than the American Army in France.

THE COMMON FROG'S HEART UNSUITABLE FOR DIGITALIS STANDARDIZATION.

The isolated heart of the common frog, *Rana temporaria*, should not be used for accurately standardizing digitalis, since it absorbs part of the active principles, and therefore behaves differently from the heart of the edible frog, *R. esculenta*, which alone should be employed for the purpose. The common frog's heart may prove useful as a control; and rough determinations within ten percent of accuracy may be made with it with digitalis and strophanthus.—M. Krough (*Ugeskrift for Læger, J. Amer. Med. Assoc.*, 1917, 68, 1672).

SACCHARIN AS A SUGAR SUBSTITUTE.

Speaking at a conference at the Food Saving Exhibition, in London, January 31, Sir Charles Bathurst, M. P., announced that the output of saccharin would be more than trebled during the next three months. Its price would be reduced, and supplies made available for people who took tea and coffee in restaurants and teasops where, under the new order, no sugar would be supplied for such beverages.—*Pharmaceutical Journal and Pharmacist*.

Prof. Charles H. LaWall, president-elect of the American Pharmaceutical Association, was given a dinner by the Philadelphia Branch of the American Pharmaceutical Association, March 5, at the City Club of Philadelphia. Besides members of this Branch, President A. R. L. Dohme, Dr. Harvey W. Wiley, a large delegation from New York and members of the Chemical Society and Medical fraternity were present. Dr. H. V. Army, of New York, presided as toastmaster. A delightful part of the speaking program was the tribute paid to the mother of Professor LaWall and to Mrs. LaWall, both by speakers and in the response of the guest of honor. The large attendance from New York was a splendid evidence of the esteem in which the latter is held, and also of the cordiality of the Association members.

Dr. Frederick B. Power, who is engaged in the Bureau of Chemistry and also on the Chemistry Committee of the National Research Council, has been elected president of the Washington Chemical Society and vice-president of the Washington Academy of Sciences. Dr. Power has been a member of the American Pharmaceutical Association since 1872.

F. A. Upsher Smith has received fine responses to his efforts in behalf of conserving sugar, glycerin and alcohol. Most of the departments of the Government interested in these products expressed their appreciation of the efforts.

Lieutenant Commander C. B. Mayo, who is on duty in the Bureau of Navigation, in Washington, has received cabled notice of the safe arrival in France of his brother, Ensign Thomas F. Mayo, an intelligence officer in the Naval Aviation Corps. These officers are the sons of Col. John P. Mayo, U. S. Immigration Commissioner at New Orleans, who was formerly head of the Mayo Drug Company, of Columbus, Miss., and nephew of Caswell A. Mayo, editor, *American Druggist*.

Thomas Tyrer, F.C.S., F.I.C., died in London, February 21, aged 74 years. His scientific education was definitely entered upon in 1861 under the celebrated German chemist, Hofmann; he studied biology under Huxley and physics under Tyndall. While most of the work of the deceased was in chemical lines, he was president of the British Pharmaceutical Conference in 1907. The subject of his presidential address was "Research," and had particular application to pharmaceutical science in all its aspects. The closing words sounded a note of appeal for increased and effective attention to the cultivation and development of research principles and methods. He was a leader in his particular field of activity, highly honored and respected in his own country and favorably known in the United States.

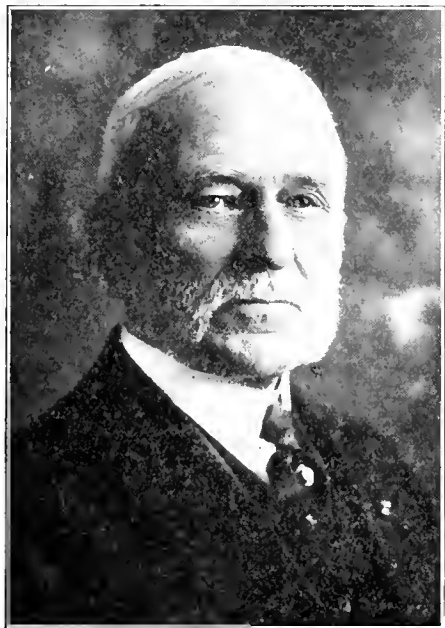
Hugh Craig, for a number of years editor of the *N. A. R. D. Journal*, has accepted a position with Frederick Stearns & Co., of Detroit. A farewell dinner was given him by the Chicago Branch, A. Ph. A. Wishes for success in his new activity were tendered to him by the members, and expressions of regret were general because of his leaving Chicago.

The Weinstein Prize has been founded by the New York Retail Druggists' Association in memory of the late Dr. Joseph Weinstein, who for many years was active in the A. Ph. A. The prize consists of a microscope to be awarded for proficiency in analytical chemistry to a student of the graduating class of the New York College of Pharmacy.

OBITUARY.

ALFRED BIRCH HUESTED.

In the last issue of the JOURNAL a brief sketch of Dr. A. B. Husted is printed, a cut which was to accompany the same came too late for use at that time. Dr. Willis G. Tucker, dean of the Albany College of Pharmacy, has prepared a sketch of the deceased for the Albany Academy and in this the writer pays well-deserved tributes to the deceased. We can quote only briefly and have chosen a paragraph which depicts Dr. Husted as we knew him.



ALFRED B. HUESTED, M.D., Ph.G.

"He was growing older but his eye was bright, his step elastic, his manner as buoyant and his greeting as cheery and as cordial as ever. His mind was to him his kingdom. It was well stored with knowledge and upon its accumulated stores he could at all times draw for his own edification, refreshment and recreation, and for the instruction and entertainment of others. He was a conscientious, just and fair-minded man, whose disposition was philosophical, and whose attitude on any matter of moment was always and instinctively reasonable, tolerant and free from prejudice. To the close of his life he retained in a remarkable degree his youthful vigor, health and mental alertness, and this

was largely due to the general sanity of his life, the acts of which were prompted by reason and not by impulse or passion. His bent was charitable and his disposition kindly. He never spoke angrily or intemperately, seldom even hastily, and he was as slow to take as he was unwilling to give, offense."

Dr. Tucker closes his sketch as follows:

"Success in life is variously measured. Fame, influence and wealth are thought by many to denote it, but others, and with saner view, hold that life is successful which has been devoted to the conscientious performance of duty, to useful work honestly done, to unselfish service to mankind. Judged by this standard, the life here briefly and imperfectly delineated, was preëminently successful, and he who lives such a life can anticipate its inevitable close with serenity because its end is peace."

FERDINAND C. SCHAPPER.

Ferdinand C. Schapper, born at Besselich, near Coblenz, Germany, November 1, 1853, died after an illness of 10 days on February 24, of pneumonia. Mr. Schapper was a graduate of the Real gymnasium, Friedrichsdorf, in 1870. He went to Blue Island, Ill., in 1872, starting in with his uncle as druggist. In 1877 he went to Chicago and started a drug store on Halstead Street, near Willow, then on the northern extremity of the city. In 1885 he became the Chicago representative of the Roessler & Hasslacher Chemical Company, of New York, and was the first resident representative in this particular industry, building up a large business. After continued services extending over a period of 32 years he retired last March. He was a member of the American Pharmaceutical Association since 1913.

SAMUEL MANSFIELD.

The late Samuel Mansfield, who for many years held the office of Treasurer of the Maryland College of Pharmacy previous to it becoming a department of the Maryland University, died suddenly on March 9, 1918. He was a member of the American Pharmaceutical Association and a man of character and repute, not as a pharmacist only, but for reliable business methods.

He was much esteemed by his colleagues of the Maryland College of Pharmacy for his accuracy and devotion to its welfare. He was

also high up in the Masonic orders and held the office of Treasurer.

He was born in Kent County, Md., Sept. 27, 1845, and became an apprentice in pharmacy to his cousin, the late James W. Bowers, in 1865—in the Pharmacy where he died, and which his cousin established at 1001 W. Baltimore Street in 1851. Mr. Bowers retired from the business in 1877 and Mr. Mansfield be-

came his successor, forty years ago. He was in his 73rd year and in pharmacy 53 years at the time of his death.

Mr. Bowers gained a substantial knowledge of pharmacy in three of the best stores of Baltimore and conducted an ethical business on his own account which was continued by Mr. Mansfield to the time of his death.

JOHN F. HANCOCK.

SOCIETIES AND COLLEGES.

HEARING ON THE EDMONDS BILL.

Under Editorial and Editorial Notes reference has already been made to the hearing on the Edmonds bill before the Committee on Military Affairs of the House; here we are in part drawing upon the report in the *N. A. R. D. Journal* for other portions of the presentation. It is gratifying to note that no less than fifty-one organizations were represented. It was evident that the committee had heard from the Surgeon-General and that they were more or less impressed that he was the most competent judge of how best to increase the efficiency of the Medical Department of the Army.

Representative Edmonds opened the hearing with the statement that pharmaceutical interests were represented from the Atlantic to the Pacific and from the Great Lakes to the Gulf of Mexico. He then asserted that the merits of the bill would be presented by selected speakers, and he introduced them to the committee. Dean Wulling insisted that the judgment of pharmacists is better than that of physicians as far as pharmaceutical questions are concerned, because pharmacists are specialists in their profession and better qualified to pass on pharmaceutical matters. He maintained that pharmacists are not in a position to-day to give the army the efficient service it requires and is entitled to, simply because there is no pharmaceutical corps in the army. The resources of pharmacy can not be marshalled under the existing organization. The American soldier at the front is to-day denied the pharmaceutical service which the civilian at home enjoys. Dean Wulling showed how the standards of pharmacy are being raised all over the country, and its efficiency, regularly increased. He said that the pharmacist and the physician are allies in the safeguarding of health and life.

He controverted the statement that manufacturers are opposed to the Edmonds bill,

which was shown to be the case when Mr. Cronse, of the N. W. D. A., read a very emphatic and patriotic letter from Dr. William Jay Schieffelin, of New York, favoring the bill. Dean Wulling pointed out that the main question was: "What shall and must be done to give the sick soldier the best service?" In private life there is the licensed pharmacist provided by state boards of pharmacy. In the army this is not the case. He resented the allegation that pharmacists are self-seeking in urging the passage of the Edmonds bill. He said that most of the restrictive legislation on the statute books of the states had been placed there by pharmacists themselves. He admitted that officers had detailed pharmacists here and there in the army to fill certain positions where their qualifications and experience could be availed of, but he contended that, because of their position as privates, they were not consulted, and could not with propriety advise their superiors.

Dr. Charles E. Caspari pointed out that the United States Pharmacopoeia and National Formulary, which provide the standards for drugs and chemicals in the enforcement of the food and drugs act and furnish the tests for the purity of drugs and chemicals, are in the main the work of pharmacists. Physicians select the drugs to go into the United States Pharmacopoeia and National Formulary, but pharmacists determine their purity. Many physicians are not qualified to make a solution for the treatment of wounds, Doctor Caspari said. The pharmacist works hand in hand with the physician, not under him, and his work is as important and necessary to the public welfare as that of the physician.

Samuel C. Henry deprecated the fact that there has been too much talk about rank and pay for pharmacists in the army. If that had been the consideration, he would not be before the Committee urging the passage of the Edmonds bill. With a lifetime spent in prae-

tical and professional pharmacy, pharmacists surely were in a better position to advise the Committee with respect to the need of a pharmacal corps in the army than physicians. Every day physicians ask pharmacists for advice as to the compounding of prescriptions and thereby save human lives.

He left it to the Committee to say whether or not conditions in the army as revealed by recent testimony before congressional committees do not demand a change in the existing order of things for the welfare of the boys in the trenches. He then told of a communication he had received from a druggist who had just paid the last of an indebtedness of \$10,000 on his store and who had been drafted to serve in the army not as a pharmacist, while others, without any experience in pharmacy whatever, were rendering pharmacal service. Mr. Henry suggested that the Committee ask the War Department for the name and address of every man in the army dispensing medicines, and in that way learn of facts relating to this part of the service.

NEW JERSEY IS SUCCESSFUL IN SECURING A PREREQUISITE LAW.

After many efforts on the part of New Jersey pharmacists a prerequisite law has been placed on the statute books of their state. News of this kind is always welcome and shows that progress is being made for better pharmacy, and the persistent workers of the New Jersey Pharmaceutical Association and the State Board of Pharmacy are to be congratulated on their success.

LOUISIANA N. A. R. D. MEMBERS PREPARE FOR THE ANNUAL CONVENTION AT NEW ORLEANS AND ENTERTAIN PRESIDENT W. H. COUSINS.

A committee composed of A. Di Trapani, Robert F. Grace, W. H. Cousins, Geo. W. McDuff, Christian Schertz, Adam Wirth, Edward Henry Walsdorf, Andrew McCullen, representing various pharmaceutical associations met at the Grunewald Hotel, New Orleans, March 19, to organize the committee to take charge of the Convention of the National Association of Retail Druggists. The date for the convention was set for September 16-20 and the Grunewald Hotel was selected as headquarters.

The following officers and chairmen were elected. George W. McDuff, chairman; M. T. Breslin, vice-chairman; Edward Henry Walsdorf, secretary; Vic. Masson, treasurer.

Committee names were: Exhibits, Christian Schertz, chairman; A. D. Parker, vice-chairman.

Program, Robert F. Grace, chairman; S. G. Steiner, vice-chairman.

Registration, A. Di Trapani, chairman; John W. Phillips, vice-chairman.

Transportation, Adam Wirth, chairman, F. A. Dicks, vice-chairman

Music and Decorations, M. Stolzenthaler, chairman; W. H. Curtis, vice-chairman.

On Monday, March 18, a banquet was given in honor of W. H. Cousins, president of the N. A. R. D., at Hotel De Soto. The pleasant affair was well attended by representatives of various associations, and druggists of New Orleans joined in the festivities.

PORTRAIT OF DR. J. O. SCHLOTTERBECK PRESENTATION DURING FIFTIETH ANNIVERSARY CELEBRATION OF UNIVERSITY OF MICHIGAN COLLEGE OF PHARMACY.

A fine life-size portrait of the late Dr. Julius O. Schlotterbeck will be presented to the College of Pharmacy of the University of Michigan by the Alumni next June, during the celebration of the 50th anniversary of the College.

Confident of the support of the Alumni body, a group of Detroit Alumni have contracted with Leon Makielski, an artist who has done much notable portrait work in Ann Arbor, to paint this portrait. His selection is approved by Mrs. Schlotterbeck, who was asked to nominate the artist, and she will cooperate with him to secure a wholly satisfactory likeness.

While primarily the Alumni have been called upon to donate toward the expense, it is assumed that many friends of Dr. Schlotterbeck will desire to contribute. The members of the committee in charge are: A. S. Parker, F. A. Thompson, G. M. Schettler, L. A. Seltzer, J. W. T. Knox, W. H. Blome, O. W. Gorenflo and F. F. Ingram.

Dean A. B. Stevens is the treasurer, to whom remittances should be made payable, but sent to F. F. Ingram, Jr., Secretary, Detroit, Mich.

THE PHARMACIST AND THE LAW.

MODIFICATION IN EXPLOSIVES ACT.

In conjunction with A. Homer Smith, of the Medical Section of the Council of National Defense, Chas. J. Lynn, President of the American Drug Manufacturers' Association, held several interviews with the Bureau of Mines and secured a comprehensive interpretation of the law as it applies to the drug trade. This matter was formally incorporated in a letter from the Medical Section to the A. D. M. A. that was first submitted to the Bureau of Mines for approval. It can, therefore, be regarded as an accurate reflection of the Bureau's interpretation.

"1. The following gives information pertaining to the Explosive License Requirement Act concerning the application of the Act as related to medicinal substances.

MANUFACTURERS.

"a. Require manufacturers' license. (I'd. Note—only obtainable from Bureau of Mines.)

"b. Do not require Foreman's license for Department heads.

"c. Must have on file certified actual copies or certified photographic copies of customers' license before deliveries can be made. The mere information of customers' license number will not be sufficient to justify shipment or delivery of items coming under the operation of the Act. Likewise, manufacturers must file with their suppliers a certified copy of their own license in order to obtain their crude materials.

"d. The Bureau of Mines will accept the ordinary trade records of transactions covering medicinals in lieu of the specific records required of manufacturers, vendors, and purchasers of explosives as such. *They do require*, however, that the number of the buyer's license must be placed on his order covering the ingredients purchased and filed by the seller in the usual way and also must appear on the invoice sent the buyer covering his purchase.

"e. Medicinal compounds containing any of the ingredients named where the compound as such is non-explosive are not affected. Medicinal products containing explosive ingredients in simple form such as chlorate of potash tablets, permanganate of potash tablets, when sold in quantities of one ounce or more, come under the operation of the Act and require license all the way down to the ultimate purchaser from the retailer."

WHOLESALESA.

"Require Vendors' license unless they also manufacture, in which event a manufacturer's License is necessary which will cover their transactions.

"Paragraphs b, c, d and e, under 'Manufacturers,' apply to wholesalers."

RETAILERS.

"a. Require vendors' license.

"b. One license for the store covers proprietor and clerks.

"c. Cannot sell in quantities of one ounce or more on prescription or otherwise except to customer having purchasers' license. Such purchasers' license need not be filed with retailer, but must be shown in every instance before delivery is made.

"d. No special record required for sales of quantities of less than one ounce, but, unless on prescription which filed becomes an acceptable record, sales of quantities of one ounce or more must be recorded as to purchaser's license number, name, address, date of sale, item and quantity sold.

"e. Must file with sources of supply certified copy of his vendors' license before his supplier can make deliveries."

PHYSICIANS.

"a. If a dispenser, must have a vendor's license to purchase and dispense in quantities of one ounce or more.

"b. Cannot dispense in quantities of one ounce or more to patient who does not hold a purchaser's license.

"c. If a prescriber, only, will require a purchaser's license to obtain supplies in quantities of one ounce or more for his own use.

"d. No special records required."

CONSUMERS.

"Require a purchaser's license to buy in quantities of one ounce or more.

EXEMPTIONS (MEDICINAL).

"Nitroglycerine in official U. S. P. solution or in form of pills, granules or tablets containing not more than $\frac{1}{10}$ grain each.

"PLEASE NOTE: The foregoing apply only to medicinals and not to explosives sold for other purposes. If a salesman personally sees customer's license and places the license number on the customer's order when sending it to his house, then his house can assume the responsibility of making delivery without having a certified copy of the customer's license on file. To expedite deliveries on mail, telephone and telegraph orders received direct

from the customers, however, it will be found advisable to have certified copies of customers' licenses on file."

(Signed)

A. HOMER SMITH,

Asst. to the Chief, Medical Section.

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List of changes of duties and stations of commissioned and other officers of the United States Public Health Service.

Pharmacist A. M. Roehrig. Relieved at Buffalo, N. Y. Proceed to Marine Hospital, Savannah, Ga. Feb. 15, 1918.

Pharmacist W. L. Stearns. Relieved at Stapleton, N. Y. Proceed to Marine Hospital, Buffalo, N. Y. Feb. 15, 1918.

Pharmacist E. M. Holt. Relieved at Savannah, Ga. Proceed to Washington, D. C., and report to Assistant Surgeon-General W. G. Stimpson for duty. Feb. 15, 1918.

Pharmacist L. C. Spangler. Relieved at the Purveying Depot. Proceed to Marine Hospital, Stapleton, N. Y. Feb. 15, 1918.

Pharmacist Herschel Megaw. Relieved at the Bureau. Report for duty at the Purveying Depot, Washington, D. C. Feb. 15, 1918.

Asst. Epidemiologist F. E. Harrington. Relieved at Anniston, Ala. Proceed to Hattiesburg, Miss., on special temporary duty. Feb. 16, 1918.

Sanitary Engr. C. N. Harrub. Proceed to Jacksonville, Fla., on special temporary duty. Feb. 12, 1918.

Asst. Sanitary Engr. Frank R. Shaw. Relieved at Hattiesburg, Miss. Proceed to Anniston, Ala., on special temporary duty. Feb. 16, 1918.

Scientific Asst. W. L. Wood. Proceed to Tenafly, N. J., on special temporary duty. Feb. 12, 1918.

Pharmacist Charles Miller. Reassigned to duty at the Marine Hospital, Key West, Fla., from Feb. 13, 1918. Feb. 20, 1918.

Sanitary Chemist A. F. Stevenson. Proceed to Newport News, Va., for conference in regard to installation of a pasteurizing plant. Feb. 25, 1918.

Scientific Asst. G. S. Bote. Proceed to Cin-

cinnati, Ohio. Lexington, and Louisville, Ky., for inspection of pasteurizing plants in connection with proposed establishment of plant at Maysville, Kentucky. Feb. 23, 1918.

Pharmacist Edward Rogers. Relieved at Ellis Island, N. Y. Proceed to Marine Hospital, Boston, Mass. March 5, 1918.

Pharmacist G. K. Hepler. Relieved at Marine Hospital, Cleveland, O. Proceed to Marine Hospital, Fort Townsend, Wash. March 5, 1918.

Pharmacist F. A. Stump. Relieved at Marine Hospital, Boston, Mass. Proceed to Marine Hospital, Cleveland, Ohio. March 5, 1918.

Asst. Epidemiologist C. C. Applewhite. Relieved at Atlanta, Ga. Proceed to Tenafly, N. J., on special temporary duty. Feb. 28, 1918.

Asst. Sanitary Engr. C. P. Rhynus. Relieved at Columbia, S. C., Rejoin station at Washington, D. C., for duty in connection with the investigation of steam pollution. March 4, 1918.

Chief Sanitary Inspector Wallace Purrington. Attend convention Southeastern States Health, Food and Drug Officials' Association, at Savannah, Ga., March 6-7, 1918. March 2, 1918.

Consulting Epidemiologist W. B. Wherry. Proceed to Berea, Kentucky, to cooperate in investigations of meningitis. Feb. 4, 1918.

Scientific Asst. J. Floyd Samar. Relieved at Detroit, Michigan. Proceed to Waterbury, Conn., for duty in studies of industrial fatigue. Jan. 31, 1918.

Sanitary Bacteriologist C. H. Spaulding. Relieved in connection with investigations of coastal waters, and proceed to Macon, Ga., for duty in malaria investigations. Jan. 23, 1918.

BOOK NOTICES AND REVIEWS.

U. S. Dispensatory, 20th Edition.—Besides the latest editions of the United States Pharmacopoeia and National Formulary, every well-regulated pharmacy should possess a library, even if only one shelf full, of reference books. Among those the most important is a dispensatory. All countries have commentaries on their pharmacopoeias, as, for instance, Hager in Germany, Vogl-Ludwig in Austria, Dorvault in France, the Pharmaceutical Codex in Great Britain, Orosi in Italy, etc. Pharmacy in the United States can justly be proud in having not only one but three dispensatories.

The oldest one of these is the "U. S. Dispensatory," the 20th edition of which has just been published. Let me quote the following from the preface of the first edition of this work, dated Philadelphia, January 1833. "We have a National Pharmacopoeia, which requires an explanatory commentary, in order that its precepts may be fully appreciated, and advantageously put into practice. On these accounts, it is desirable that there should be a "Dispensatory of the United States," which, while it embraces whatever is useful in European pharmacy, may accurately represent the art as it exists in this country and give instruction adapted to our peculiar wants." Eighty-five years have passed since these words were written by Dr. George B. Wood and Dr. Franklin Bache and they still hold good this very day. From the small "Wood and Bache Dispensatory," of 1073 pages, the book has now become a master work, an authoritative encyclopedia on pharmacy, chemistry, botany, materia medica and therapeutics. The Historical Title Page, page ii, gives an excellent account of the evolution of the U. S. Dispensatory during its life of 20 editions.

The 20th edition just published and before us is a stately volume of 2150 pages, bound in buckram, which wears much better than leather. The editorial staff consists of experts of national and even international reputation, namely, Professors Joseph P. Remington, Samuel P. Sadtler, Horatio C. Wood, Jr., Henry Kraemer, Charles H. LaWall and John F. Anderson. These men are so well known to both the professions of pharmacy and medicine that no further introduction is necessary. It is to be regretted that the editor-in-chief, Joseph P. Remington, died while this edition was in the press

and could not see the present stately master volume.

That the 20th edition of the Dispensatory was not rushed or revised in haste can be seen from the following dates: The U. S. P. IX was published in August 1916, and the present edition of the Dispensatory in March 1918, and consequently 20 months of hard work were required to prepare the 20th edition of the "U. S. Dispensatory." The work has been brought up to date in conformity with the rapid advances in the pharmaceutical and medical sciences. No other book in the English language can be compared favorably with this edition of the U. S. Dispensatory in the extent of subjects and the method of treatment.

Among the valuable features of the present edition are the lists of synonyms, the insertion of alternative quantities in the formulae of the official preparations, the use of diacritical marks as a guide to pronunciation, and the list of official preparations at the end of the monographs of the official drugs. The use of these diacritical marks is a feature which should be especially appreciated by teachers and students and should also be of great help to make the pronunciation of Latin titles more uniform. The dose of each drug is given at the end of the description of its therapeutic uses, whereby the information which is usually wanted in a hurry is found in an instant. The quantities given are not intended as strict minimum and maximum doses, but merely to serve as a guide to the amounts generally used.

The 20th edition of the "U. S. Dispensatory" is a true commentary upon the latest revisions of the United States and British Pharmacopoeias. This, together with comments upon those preparations of the German Pharmacopoeia and the French Codex which are used generally in the United States, comprises Part I, which contains 1221 pages. How thorough the monographs in this part are written can be seen from the following two examples: Under *Acidum Salicylicum*, U. S., Br., the arrangement is as follows: U. S. P. and Br. P. definitions, Synonyms in English, German, French, Italian and Spanish, History, Preparation, Properties, Assays of U. S. P. and Br. P., Tests, Uses and Therapeutic Action, Dose and Official Preparations in U. S. P., Br. P., and N. F. The monograph of *Zingiber*, U. S., Br., is thus arranged: Defini-

tions, Synonyms, Commercial Varieties, Descriptive paragraphs on Jamaica, African, Calcutta, Calicut, Cochin and Japanese Ginger, Constituents, Uses, Dose and Official Preparations. The three full, double-column pages are proof of the thoroughness of this monograph. As a commentary on the Pharmacopoeias this part can not be excelled. One of the features are the many references to pharmaceutical, chemical and medical literature, because it enables the reader to consult the original article when he finds the abstract insufficient.

In Part II the National Formulary and other non-official drugs and chemicals are described on 451 double-column pages. The type in this part is smaller, by which arrangement the reader can at once differentiate between the pharmacopoeial and other drugs. While the limit of the present volume forbids an exhaustive description of all these substances, the subject is treated in an excellent way and the most essential information is given besides the key to the pharmaceutical, chemical and medical literature.

Part III is divided into two sections. The first contains Reagents, Test Solutions and Volumetric Solutions of the U. S. P. and Br. P., Biological Assays, Elements, Pharmacopoeial Chemicals and their Atomic or Molecular Weights, Thermometry, Weights and Measures, Alcohol and Other Tables. Section II contains an abstract of the preparations of N. F. IV, without, however, giving working formulas, according to the agreement with the A. Ph. A. In the opinion of the reviewer, this Section on the N. F. deserves to become Part IV of the "U. S. Dispensatory" and should also be improved by giving the history and uses of the most important galenicals.

The Preface of the work contains: Abbreviations, Table of Abbreviated Tables of Journals and Books, Glossary of Medical Terms, Index of Diseases, The Food and Drugs Act, Food Inspection Decisions, Harrison Narcotic Act and Regulations, and last, but not least, Index to Food and Drugs Act and Harrison Narcotic Law. The publication of these two laws and regulations in this book places same into the hands of pharmacists, wholesale and retail for easy reference. By referring to the special index of these decisions the reader can at once find an abstract, which is a great convenience, as these decisions are not always readily obtainable.

The Index of the "U. S. Dispensatory" oc-

cupies 170 pages in 3 columns in small type. The index is a key to a book and Prof. E. Fullerton Cook is to be complimented upon this well-fitting key.

The publishers, the J. B. Lippincott Company, are to be congratulated upon the typography and the make-up of the work. For a book of its size, it is remarkably light in weight and easy to handle, due to the use of light weight, but durable, paper. Much space has been saved by the use of smaller type in Part II, dealing with non-pharmacopoeia drugs. The binding in buckram is very durable and will no doubt last for ten years, when the next, the 21st edition, will be published.

The editors are to be complimented on so worthy a contribution to American pharmaceutical literature. Works of this kind will greatly help to improve American pharmacy and give our brethren across the great pond an idea of "what is doing" in the United States. The book is a wonderful repository of information concerning drugs and medicines, a real encyclopedia of pharmacy, a master work, which will be an everlasting monument to the editor-in-chief, the late Prof. Joseph P. Remington.

Let us hope that the 20th edition of the "U. S. Dispensatory" will be bought and used by pharmacists, druggists and physicians throughout the United States and English-speaking countries. Besides the many advantages already pointed out, this work will be a great help to the retail pharmacist who is daily confronted with numerous problems in the drug business and quite especially behind the prescription counter.

OTTO RAUBENHEIMER.

PUBLICATIONS RECEIVED.

A Guide to the Organic Drugs of the Ninth Revision of the United States Pharmacopoeia, the Third Revision of the National Formulary, a Few of the More Commonly Used Unofficial Drugs, and other Useful Information.—Compiled and arranged by John S. Wright. Revisions and Additions by Francis A. Federer and Harry W. Tuft. Third Revision, with Appendix. 70th Thousand. Prepared for Students of Pharmacy. Published from The Botanical Department by Eli Lilly & Company, Indianapolis, U. S. A. Price, 25 cents. That the copies of this handy guide have been printed to the number indicated is sufficient evidence of its value. The latest edition—just off the press—contains in addition to the

information on the organic drugs of ninth revision of the U. S. P., the same facts concerning the third revision of the National Formulary and the more commonly used unofficial drugs. Included in this vest pocket compendium are a conspectus of plant families, a glossary of botanical and therapeutical terms used and an index of botanical synonyms.

Still another feature of this handy reference booklet is a table of poisons and antidotes, rules for comparing Fahrenheit and Centigrade scales, phrases and abbreviations used in prescription writing, Latin genitive case endings, symbols and signs used in prescriptions, the Metric system of weights and measures and a table of equivalents.

FIND ADULTERATED DRUGS.

DEPARTMENT OF AGRICULTURE INVITES CRITICISM OF PROPOSED RULINGS.

The officials in charge of the enforcement of the Federal Food and Drugs Act have found certain impurities in pennyroyal leaves. In order that the trade may know what the United States Department of Agriculture regards as adulterants of this product it is proposed that a service and regulatory announcement be issued outlining the opinion of the department. Before issuing the announcement, the department desires to obtain the views of the trade or other interested parties as to the fairness of the ruling. Communications should be addressed promptly to the Bureau of Chemistry, Department of Agriculture, Washington, D. C. All criticisms will receive careful consideration. The proposed announcement follows:

"INFERIOR PENNYROYAL LEAVES.—Examination of samples of pennyroyal leaves, *Hedeoma pulegioides* (Linne) Persoon, has disclosed that in a large number of instances, the product has been very carelessly collected and frequently contained very large amounts of sand, stems and other foreign material. From the data at hand, the bureau is of the opinion that properly collected pennyroyal leaves should contain not more than 10 percent of stems, not more than 16 percent of total ash and not more than 6 percent of acid-insoluble ash (sand), and will consider as adulterated, under the Food and Drugs Act, any material which does not comply with these figures. Further investigation may reveal the necessity of establishing a more rigid requirement, in which case due notice will be given."

PULVIS UNNA.

Dr. H. V. Army states (*C. U. C. P. Alumni Journal*) that by this title, the prescriber undoubtedly means *pulvis fluens hydrargyri*, a powdered form of mercury, made by rubbing mercury with talcum powder and a little oil of turpentine. In another recipe a 30 per cent powder is directed to be made by triturating thirty grams of mercury with five grams of oil of turpentine and fifteen grams of lycopodium until it is extinguished, after which it is diluted with fifty-five grams of powdered wheat starch. For further details, see Year Book of the American Pharmaceutical Association, 1915, page 210; 1916, page 281.

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, \$4.00; Canada, \$4.35; foreign countries, \$4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 211 Church St., Easton, Pa., or 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

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Further information will gladly be furnished by any of the officers of the Association and members.

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*Deceased November 19, 1917.

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Sponsor of the Edmonds Bill for the Establishment of a Pharmaceutical Corps in the U. S. Army



HON. GEORGE W. EDMONDS

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. VII

MAY, 1918

NO. 5

GEORGE WASHINGTON EDMONDS.

Pharmacists, while engaged in their profession, have seldom, if ever, been members of Congress, or occupied any of the higher political offices. There are, however, many who, during some period of their lives, have been actively engaged in the drug business, but to name them is not the purpose of this writing.

Congressman G. W. Edmonds, sponsor of the bill by his name, was born at Pottsville, Pa., February 22, 1864. Doubtless, the date of his birth suggested his Christian and surname. He was educated in the schools of his native city prior to his attendance at the Philadelphia College of Pharmacy, from which institution he graduated in 1886. He was engaged both in the retail and wholesale drug business as clerk for a number of years, and afterward on his own account. After about seven years of service in pharmacy he embarked in the coal business and his business interests today are in that line. So notwithstanding the fact that he is no longer active in the profession of pharmacy, his knowledge of the requirements and a deep realization that our soldiers are entitled to and need the services of pharmacy made him a willing spokesman and advocate for a Pharmaceutical Corps in the Army. We are hopeful that Congress will recognize the need of it as he does.

CONSERVATIVE CONSERVATION OF DRUGS—AN ADDENDUM.

Since the editorial on next page under above caption was written, the U. S. Food Administration has issued a bulletin announcing regulations relative to sugar purchases and sales.

Distribution under a new plan goes into effect May 15; a certificate system is provided that will virtually eliminate fictitious demands. While the restrictions were brought about primarily to assure sufficient supplies for essential foodstuffs, they were required to insure a greater supply for the Allies. Druggists will be permitted to buy sufficient sugar to meet their full requirements for medicines. Ice cream has been placed in the preferred class to encourage dairy interests to maintain their production; the use of sugar for soda fountain beverages is restricted.

EDITORIAL

E. G. EBERLE, Editor

253 Bourse Bldg., PHILADELPHIA

CONSERVATIVE CONSERVATION OF DRUGS.

ALL the members of the American Pharmaceutical Association are willing conservators of foods as well as drugs, and differences of opinion relative to methods of conservation have no bearing whatever upon their attitude in this propaganda.

The question of conservation is related to that of supply and demand; what may have implied a saving before, now may rightfully be considered as wasteful. Lack of supply and an increased demand occasioned by war conditions have compelled enforced conservation of nearly all commodities, of service, of help, of health, in fact, it is of general, paramount importance.

As pharmacists, our problem is to conserve drugs and in that connection we are brought into coöperation or conflict with those who have great need for some of the articles necessary in the preparation of medicines, notably sugar,¹ glycerin and alcohol.

In a recent Government report it was estimated that if a saving of 25 percent of sugar was made there would be sufficient supply. Conservation should first be directed to unnecessary consumption of the article to be conserved, and it would seem that the saving indicated is possible when the large quantity of candy consumed is considered with the excessive amount of sugar dispensed in soda fountain beverages. The increased demand for confections does not date back many years. It is safe to say that candy is not an absolute necessity, therefore let those who insist on the luxury pay an advanced price and the manufacturers cut down the quantity of their production. It is essential that business be conserved as well as products.

Cane sugar is necessary for soda fountain beverages, but the syrup, as dispensed, can be diluted, and glucose added if necessary for body. It is presumed that such a syrup will more readily ferment than a concentrated sugar syrup and it may also be true that, especially if the fact is known to the patron, the beverage will not be quite as pleasing to the palate of the modern connoisseur. But these are times when everyone can afford to assume a part in conservation. The soda fountain business should not unnecessarily be interfered with; it has grown to large proportions and in many ways contributes to other industries.

¹ Frank C. Lowry, of the Federal Sugar Refining Company, estimates the present sugar balance at 3,451,572 tons. On the basis of 1917 consumption for the U. S., from now until the end of this year, 2,867,349 tons will be needed, indicating a surplus of 584,223 tons. Crop yields may fall below Mr. Lowry's estimate and more may be required by countries relying on the U. S. for supply; on the other hand, the conservation ideas, now more strongly impressed, will have a tendency to reduce the consumption of sugar.

These two lines are mentioned in connection with the conservation of sugar because of the large amount required by them and, the opportunity obtains, without great or disastrous disadvantage of conserving the greater part of the 25 percent sugar deficiency alluded to. The amount of sugar used in officials is relatively small and it seems inadvisable to seek its conservation in that connection except in so far as prescription practice is concerned. The physician can in many instances discontinue the prescribing of vehicles containing sugar.

Glycerin conservation is a matter of more serious importance or at least may become so. There is still the possibility for increasing the output but there is opportunity for eliminating glycerin from some preparations. The conserving of a quarter pound of glycerin daily in 50,000 stores and manufacturing plants would make available several tons of glycerin each day. Unfortunately we have no definite information from the Government at hand as to the amount required for its needs. However, here again it would seem that conservation should not be made by altering present formulas of the U. S. P. and N. F. except in a few instances, perhaps. Glycerin sales over the counter and in non-official preparations should be discouraged and physicians encouraged to exclude glycerin from prescriptions, unless essential thereto.

There are comparatively few preparations of the official standards wherein alcohol is not necessary; however, there are formulas of elixirs in the National Formulary that should be modified, for example, elixir of potassium acetate and lithium salicylate, even if the shortage or higher cost of alcohol did not enter. In this connection the paper by Dr. Horatio C. Wood, Jr., pp. 344-347, April issue of the JOURNAL, should be given careful consideration. Aside from such conservation, physicians should be prevailed upon to prescribe extracts instead of fluidextracts and tinctures when in their opinion advisable which can not invariably be the case.

The paper by Ambrose Hunsberger, pp. 349-353 in April number of the JOURNAL, offers most excellent suggestions and that his conclusions are well founded is voiced by the hearty approbation of quite a number of practitioners and, if the approval is given by these, there is no reasonable doubt that the same propaganda can be successfully promoted elsewhere.

So in our opinion conservation is possible without extensive disturbance of the official standards; radical changes are not advocated. There is, however, a possibility of giving recognition to some drugs that can be employed instead of those now official, and it is this thought that prompted the editorial of the January issue, p. 11.

E. G. E.

CONSERVATION OF HELP.

AS all other activities, the drug^r business is now disturbed over the matter of help. This presents a serious problem because experienced employees are required and the laws of States and Government demand that pharmacists be

qualified by training and education, notwithstanding that this fact is largely ignored when they enter Army service—a rather anomalous condition. But the situation confronts us and a discussion of the important subject is in order.

Many stores manufacture comparatively few preparations and the prescription department is unprofitable if a pharmacist must be employed. The trade of these stores is largely in merchandise that any clerk, man or woman, can sell without long training or at least without education in pharmacy. Ideas that would not be offered during normal times are permissible under present conditions; relief must be sought. Here then is one suggestion: do away with pharmacy in these stores altogether and permit such patronage to go to other stores. A number of years ago the writer proposed such plan to three druggists of a small city. As a result one of the stores assumed the pharmaceutical work and discontinued selling certain lines of merchandise. The arrangement worked well for a time, but as the present exigency did not then exist and there being changes in the firms, the plan was discontinued. Consolidation of stores or partnerships would make such arrangements practicable. Another plan is to adopt the department store idea in the larger establishments, assigning pharmaceutical duties exclusively to registered men. This will permit of employing women as clerks and conserve the number of qualified pharmacists who, of course, must also have supervision of the merchandise sales that could be construed as coming under pharmacy law regulations.

It is true that soon colleges of pharmacy will graduate their students, but many of these will immediately enter the service and so those available for positions will be rather limited in number. The colleges of pharmacy should make strong efforts to matriculate more women. It is safe to say that the question of help will become worse before the situation is materially improved. E. G. E.

THE MEDICAL DEPARTMENT OF THE U. S. ARMY SHOULD AVAIL ITSELF OF THE GREATER POSSIBILITIES OF AMERICAN PHARMACEUTICAL SERVICE.

AT the first meeting of the Philadelphia Branch, A. Ph. A., following the declaration of war, a War Aid Committee was appointed, and in May (1917) resolutions that had been adopted by the Branch were directed to President Wilson, Governor Brumbaugh, Mayor Smith and to various pharmaceutical associations. A brief outline was given of work which pharmacists could coöperate in and included these suggestions:

“Continuous display of posters; distribution of literature; interpreting to prospective recruits the different branches of the Service; enrollment of recruits; dissemination of information, orders and proclamations; fostering intensive production of foodstuffs in rural communities; receiving donations for forwarding to central distributing points; furnishing reports of disloyal conduct, suspicious actions, etc.;

control of the sale of potentially dangerous chemicals, such as chlorates, nitrates, etc."

The Committee felt safe in pledging the best efforts of every pharmacist in the United States to uphold the nation in its determination to assert American rights under any and all conditions.

A number of schools of pharmacy at once, by consent of the student body, pledged their services to the country; the American Pharmaceutical Association and its branches, as well as all other related organizations, offered their coöperation and services; the American Conference of Pharmaceutical Faculties extended the facilities of the affiliated institutions; the U. S. Pharmacopoeia Revision Committee and National Formulary Committee are at work considering conservation of articles required by the Government, and of drugs; branches of the American Pharmaceutical Association are giving much study to the subject.

We might go into detail relative to work accomplished; however, this is not the purpose. One intention is to direct attention to all the offers of the resolutions, many of which were afterward adopted by the Government, but for example, the suggestion relative to explosives was not utilized until quite recently. Surely, this is testimony that pharmacists are competent to plan and devise.

There are departments of the Government where the advice of pharmacists would have in the past saved considerable trouble, annoyance and expense. Doubtless the Medical Supply Department of the Army has profited by the advice of pharmacists, for a decided improvement is evident; the glaring errors which were shown in the official List of Staple Medical and Surgical Supplies published by the Medical Department of the U. S. Army have been corrected.

The American Medical Association, representing 80,000 physicians, is on record as favoring a properly organized pharmaceutical corps, and from opinions of medical men in various localities, in fact throughout the country, such provision for the Medical Department of the Army is strongly advocated, even though not urged to the extent of displeasing the officials. The proposal is indorsed by all pharmaceutical organizations, comprising memberships of nearly 50,000—all of them good citizens, entitled to a hearing. So many young pharmacists are now enlisted that it has produced a serious shortage of dispensers and has largely reduced the number of students in colleges of pharmacy. Some of the enlisted pharmacists have had to dispose of their stores at financial sacrifice. In all of this a patriotic spirit has been shown. But they do ask, Why is the importance of pharmaceutical service not given the recognition it deserves in the Army?

Besides clinical laboratory work, dispensing and medical aid, there are many non-medical duties that pharmacists can perform and thereby relieve the doctors to that extent which implies, that a lesser number of them will be required for the Army. It is becoming a serious question, whether a sufficient number of medical

men can be enlisted without drawing too largely from those needed at home. We refer to an abstract from the paper by Ambrose Hunsberger, printed on p. 320 of the April issue.

There is no doubt that the Army dispensary service has been improved, but there have been instances of dispensing by inexperienced men, even though pharmacists were then in the same cantonment.

European nations avail themselves of organized pharmaceutical service and have words of praise for its efficiency.

The following repeated question is relevant: "Would the Medical Department of the U. S. Army be more or less efficient with an organized corps of trained pharmacists than under the present system?" And another that we can also answer only in one way namely, "Are not soldiers, as far as possible under war conditions, entitled to the same or related attention that is deemed essential in civil life of medical practice which embraces efficient pharmaceutical service?"

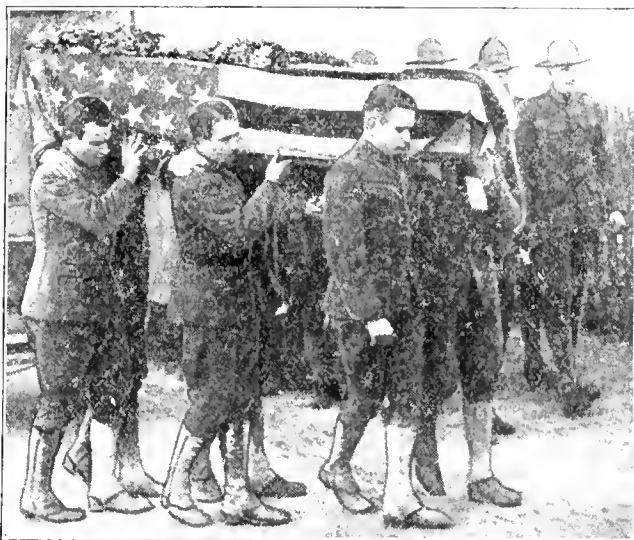
The response to the efforts of the American Pharmaceutical Association for a pharmaceutical corps in past years has been "that such organization was unnecessary in peace time; " now we have war and the installation is considered inexpedient. The Irishman, in *Handy Andy*, has been quoted by a contemporary, "who did not thatch the roof of a church in fair weather because it was not necessary and could not do so while it was raining."

"It is just as reprehensible to waste talent as material. It is the property of the citizenship, and citizens are entitled to its conservation and the protection it affords." This was not said of pharmacy but it is applicable to it.

An axiom of Democracy says: "The whole people is wiser than any group or man in it. Its judgment is safer, surer." The question of the right pharmaceutical service is a broad one: it is not of an individual case or opinion but one to be asked of thousands of physicians, of tens of thousands of parents and sons, "Should the best that is in pharmacy and pharmacists be made available?"

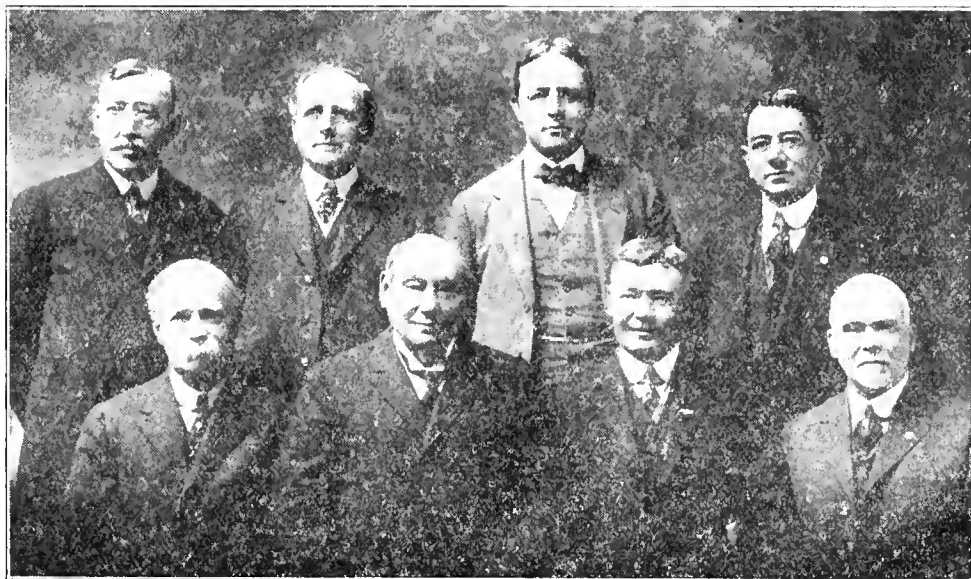
The advice of pharmacists on matters that their training qualifies them to give should be made use of and also their services whenever necessary; to do otherwise, necessarily involves needless expenditure and avoidable inconvenience, and constitutes an injustice to the public. Why seek to assign and qualify medical men for pharmaceutical duties when they are already burdened with their own? Why are pharmacy and pharmacists of less importance in military service than in civil life? The Medical Department of the U. S. Army should avail itself of the greater possibilities of American pharmaceutical service, because our soldiers are entitled to the protection such service affords.

E. G. E.



FUNERAL OF KENNETH B. HAY, Thanksgiving Day, 1917.—One of the first sacrifices of our country to the great cause in France

Kenneth B. Hay was the son of Charles T. Hay, of Dubois, Pa., member of the A. Ph. A., until his demise in 1917. After preparing for college at Montclair, N. J., Hay entered Yale, where he remained two years. After leaving Yale, he entered the Philadelphia College of Pharmacy. He was in his second year when he enlisted with the Pennsylvania Hospital Unit, which left Philadelphia for foreign service on May 18 last.



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SCIENTIFIC SECTION

RABIES (HYDROPHOBIA).*

BY E. G. STEWART, M.D.

Rabies, hydrophobia, canine madness or lyssa, is a highly infectious or communicable, rapidly fatal disease affecting practically all warm-blooded animals, especially those most commonly exposed to the bites of dogs, cats, coyotes, wolves and skunks affected with the malady. The Latin "rabies" is the best general term for the disease, in both man and animals.

Its communication from subject to subject depends upon actual inoculation, the virus or infective material being injected into the body organism through a wound made by the teeth or claws of the infected animal, chiefly the canine. Less frequently, fresh wounds, abrasions or even closely shaven surfaces which have come in contact with virulent saliva, may be the avenue of infection. Still another source of contamination is through autopsy wounds. Schroeder reported a few years ago two cases of deaths from rabies, one that of a coachman who was infected by the caresses on his face of his pet dog, that a few days later developed rabies, and the other, of a child that showed no signs of having been bitten.

As a disease entity, rabies is distinguished by its variable incubation period, one to ten months; the localization of the virus principally in the central nervous system and salivary glands with the ultimate destruction of the functioning power of the former and marked disturbance of the psychical faculties; by the short course of the developed disease and its uniformly fatal ending; by the protection afforded by inoculation with attenuated rabies virus, and by the great diversity of opinions which are still held in regard to its existence or non-existence.

There are still some individuals, including physicians, who are skeptical regarding, or even deny the existence of, rabies as a distinct disease; or, if recognizing it, they believe that the individual or animal bitten by an animal in perfect health is liable to become affected with rabies, should the offending animal develop the disease at any subsequent period, no matter how remote. To deliberately deny the existence of rabies, shows either a lack of information or is an impeachment of the sincerity and truthfulness of the men who have devoted years of disinterested study to the subject and who have presented to the scientific world, facts of observations and investigations which have proved rabies as much of a disease entity as scarlet fever, bubonic plague or smallpox. The multiplication of the living virus in the body, the communication and its mode of transmission by the affected animal to another perfectly healthy one, the multiplication of the virus and subsequent manifestation of symptoms of the disease in the second animal are procedures which have been demonstrated beyond a doubt. Every case of rabies presupposes a previous case of the disease. As to the query of the skeptic, relative to the origin of the first case, there is no answer, a mystery common to every animal and plant in the whole universe of living things, from the highest mammal to the most insignificant protozoa, from the mammoth trees to the micro-

* Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1918.

organisms. "To deny the existence of rabies because we cannot trace the virus to its primary origin is to use an argument that can be applied with equal justice to show the non-existence of both dog and master and everything else living and dead. Primary, fundamental or final causes are beyond human comprehension, and those persons who require them as a basis of their beliefs, if they are consistent, must necessarily deny the existence of everything."

While rabies is not to be compared with many other infectious diseases relative to its mortality rate among human beings, it does have a definite claim for attention at the present time. It annually claims a number of victims, for, as some one has said, this "madness" is not a lunacy with life but a sanity with inevitable death; it entails untold anguish and agonies of apprehension in exposed persons and in those who have had loved ones exposed; it causes each year no inconsiderable loss economically from the death of valuable stock. And all because we refuse to make use of the comparatively simple measures which would reduce the disease to a minimum or entirely eradicate it—the enactment of proper dog laws and the muzzling of all dogs. Since the introduction of such measures the disease has been diminished in most of the German states, and the cases reported have usually come from near the border line where muzzling is not enforced. With such laws, Denmark, Sweden and Norway have not known rabies for years and it has recently been eradicated from England and Switzerland. It has never been known in Australia, probably owing to the fact that a strict enforcement of a six months' quarantine for dogs is observed.

Of all the domestic animals, the dog and cat are given the most liberty. The dog is a social animal and the cat a solitary one; domestication and association with man have not changed their inherent qualities or traits. Therefore, in the transmission of rabies, the dog is the more dangerous of the two. But when it is suggested that this roaming at large be stopped and that the dog be muzzled, a great hue and cry goes up from so-called "dog lovers," yet in reality it is no more cruel to place a muzzle on a dog than it is to put a bit in the mouth of a horse, harness him with stiff, chafing leather straps and force him to draw loaded wagons. And, in the true evaluation of things, to be a friend of man is better than to be a friend of animals, for all the discomfort of all the muzzled dogs in the world is as nothing compared to the slightest anxiety and suffering of one human being from just the fear of rabies. One must needs wonder how long public sentiment is to remain out of focus on this subject, and defeat the efforts of organized medical bodies for the prevention of disease.

Therefore, in view of existing conditions, it is well for the physician and the pharmacist and even the laity to have the salient facts of rabies in mind, because the necessity for dealing with them usually comes without much warning except in recognized epidemics of the disease, and the problems relating thereto must be met promptly.

HISTORICAL.

The earliest record of rabies is said to be found in the writings of Aristotle:

"Dogs suffer from a madness which puts them in a state of fury and all animals which they bite in this condition become also attacked by madness."

We find mention of rabies in the works of Virgil, Horace, Ovid and Plutarch. No mention of human rabies is made until the first century A. D. when Celsus described it. In the second

century, Aurelianus recorded a definite description of the disease in man practically as we know it to-day. Nothing of the disease is recorded during the middle ages. In 1591, Bauhin speaks of the infection of human beings by rabid wolves. There was an epizootic of rabies in 1604 in Paris; toward the end of the seventeenth century in Italy; in 1708 in Suabia; in 1719-23 in France and Germany; in 1754-1760 in England; in 1779-1807 in America, especially in the West Indian Islands and Peru. In 1779 there was an epidemic in Philadelphia, and in 1873 one in New York and other parts of the United States. Toward the end of the eighteenth century and the beginning of the nineteenth century rabies had spread all over Europe. Attempts have been made in the past to secure data concerning its prevalence in the United States, and the positive results at hand indicate that nearly every state in the Union has at one time or other harbored this disease in man or animals. In the Western States, the infection is frequently found in skunks or coyotes.

The early conception of the disease was held until the nineteenth century when inoculation experiments and scientific investigation revealed its true infectious character. Some of these early beliefs were naturally the results of unscientific investigation and observation, but they are worthy of consideration and repetition because they are accurate, namely, that long-haired dogs are attacked less frequently than short-haired ones, an observation explained by the fact that the infected saliva is mechanically removed by the hair; the young dogs are more susceptible; that the saliva of dogs may be virulent before symptoms have appeared; that the fear of water is seldom observed in rabid animals, the so-called "hydrophobia" being due to an intense spasm of the muscles of deglutition which interferes with the animal's satisfying his thirst. In China no corresponding word for hydrophobia is known. Mad dogs may be playful at first, they do not necessarily froth at the mouth, appear wild or carry the tail between the legs.

Various erroneous and peculiar aetiological factors were designated to account for the disease, due to the very crude methods of diagnosis and to the fact that the disease was confused with other nervous conditions, and that, because of its long incubation period, its presence in man was not associated with previous injury received from a rabid animal. It was said to be produced by "evil spirits" and to be cured by pilgrimages. Fright produced it. The disturbed relations of body gases resulting in a poisoning of the blood is another cause given. Among the Chinese, the idea is still prevalent that dogs become mad from eating toads in the spring or breathing at snake holes the poisonous vapors given off by the hibernating snakes. Frederick the Great issued an edict that the "mad worm," supposed to be the cause of rabies, but since found to be a normal cartilage of the tongue, should be removed from all dogs. Deprivation of water, extremes of temperatures, especially heat, eating putrified materials or drinking foul water, lack of a meat diet in animals accustomed to meat have all been popular beliefs. A number of years ago, the president of a S. P. C. A. of one of our large cities said that if dogs were given all the water they needed to drink, there would be no such thing as rabies.

The remedies suggested for the prevention or cure of rabies are equally interesting. In China, a dose made by pulverizing certain small insects like lice, is considered a specific emulsion. May worms given in honey is an old-time remedy. Pliny the Elder recommended the livers of mad dogs as a cure for hydrophobia. By some, it was believed that the little figures of dogs, in reality blood clots, passed in the urine of a patient after the administration of cantharides were the cause of the disease and that their elimination in this manner would result in a cure. The "mad stone" as a curative agent is still devoutly believed in by a great many people in different sections of the country. A physician from one of our Southern States reported in a medical meeting last year the occurrence of three cases of possible exposure to a rabies infection; one of these was given the Pasteur treatment, one had the wound canterized and the third had the mad stone applied. He apparently did not doubt the efficacy of any of the treatments. Some of these mad stones, properly called hair balls, are obtained from the stomachs of various wild and domestic animals. They are in some cases composed of matted hair which the animal has licked from its body and swallowed; but in the majority of cases they consist of masses of vegetable fiber which have gradually collected over a considerable period of time and formed into a spherical mass by the contraction of the gastric walls. After a person has been bitten, the mad stone is applied to the wound; if it adheres (which depends entirely upon the amount of hemorrhage) it will remove the poison, which can be detected by the discoloration produced when the stone is subsequently boiled in milk. Instances have been known where persons have made long journeys and paid large sums of money to have the mad stone applied. Celsus advised treating the bites

inflicted by dogs by suction and cauterization with the actual cautery. When the disease had developed, he recommended immersing the patient in cold water. This method of treatment persisted until the eighteenth century.

As a means of diagnosis, the bared breast of a living fowl was applied to the wound, if the fowl died it proved that the rabies poison was present, but if it lived, there was no danger to the bitten person. Another diagnostic method was to feed the exposed person some yellow or black beans. If the man found the taste pleasant and sweet and enjoyed them, he was mad, but if the taste was unpleasant, the poison of madness was not present.

In 1804 it was demonstrated by inoculation experiments by Zinke and Grüner and by Count de Salm-Reifersheid in 1813, that the saliva of a rabid dog was infective. In 1854, Virchow showed the fallacy of the spontaneous origin of the disease, and Galtier established the method of transmitting the disease to rabbits by subdural inoculation of the suspicious nerve substance. The researches of Pasteur and his co-workers demonstrated the location of the virus in its purest form in the central nervous system and gave the world protective inoculation or preventive vaccination.

Observations suggested and experiments proved that rabies was an infectious disease with symptoms referable to the nervous system, the propagation medium being the torn nerve fibers or nerve filaments at the site of the wound. The blood and lymph streams do not contain the causative agent or at least only rarely and are not usually regarded as sources of infection, but it is present in the salivary glands. Poor and Steinhardt isolated it from the salivary glands in 75 percent of all cases tested. The salivary glands in man rarely contain the microorganism. The mammary glands are occasionally invaded by the virus and milk may be a source of infection to the milker if he should happen to have cuts or bruises on his hands. Bordach records a case of a woman suffering from hydrophobia whose milk was demonstrated to contain the virus by inoculation into animals. A child she was nursing did not, however, contract the disease. Ingestion of the milk would not appear then to be a means of infection if the mucous membranes are intact, although rabbits have been inoculated successfully through the uninjured mucous membrane and one case of rabies in a nursing child has been recorded in the literature. The cerebro-spinal fluid is not infective. The skin may contain the virus at the point of inoculation, a fact which serves to emphasize the necessity of proper cauterization of the wound.

The nerve tissue of the body constitutes a perfect culture medium for the growth of the rabies microorganism, but the question of a successful artificial culture medium outside the body has not yet been settled. Noguchi reported the isolation of the rabies organism a few years ago. He states that he found, in a specially prepared culture medium, very minute granular and somewhat coarse pleomorphic chromatoid bodies which, on subsequent transplantations, reappear through many generations. By inoculating animals with cultures containing these bodies, rabies was produced in dogs, rabbits and guinea pigs as shown by the typical symptoms and further animal inoculations. His work has not as yet been confirmed by other observers. Renlinger, Poor and Steinhardt and others have demonstrated the filterability of the rabic virus. In 1903, Negri of the University of Pavia, Italy, described certain bodies which constantly occurred in certain nerve cells in cases of rabies. The relations of these bodies to the disease have been repeatedly confirmed and the demonstration of their presence in the cells of the

cornu ammonis is considered pathognomonic of the disease. Negri concluded from his studies that these bodies were probably protozoan in nature and the true causative agent. Other observers share Negri's belief, while still others are inclined to believe that they are merely cell reactions to the rabies virus. Since the discovery of the Negri bodies, it has been possible to make a laboratory diagnosis of rabies within a few hours. They are found in 96 to 98 percent of all cases of rabies that have been examined microscopically and are so permanent that their presence can be demonstrated some time after decomposition of the tissues has begun. The practical importance of their discovery apart from any ætiological relation which they may bear to the disease is obvious.

Rabies is commonly met with in mammals which are subjected oftenest to the bites of dogs, wolves, etc., but all warm-blooded animals are susceptible. The dog is most frequently affected. In Russia and in other limited areas, the wolf stands next. Cattle are often attacked by wandering rabid dogs. Cats are frequently infected, oftener than is usually suspected, because they develop the dumb form of rabies which means that no diagnosis, except of sickness, is made. Cases of human rabies are not so frequent as formerly because of the wide application of the preventive treatment.

Dogs, whether mad or not, are more active in biting during the summer months. The reason for this may be that especially during that time of the year, many street animals suffer from heat and thirst and the deprivation makes them irritable or they may be subjected to an unusual amount of teasing. These are the months, too, when people are much in the open. This is particularly true of children during the vacation months. Their chances of exposure to bites of animals are increased many-fold. One writer states that the number of applicants for treatment at a Pasteur Institute in the Northwest during the summer months far exceeds the number of persons who apply for treatment during the winter months, but that it is necessary to treat only 25 percent of such applicants since negative results for Negri bodies occur in 75 percent of animal brains examined, while in the winter, it is necessary to treat 60 percent of all applicants. In large cities, the cases of rabies in the dog are more frequent in winter than during the summer months. The idea is prevalent that animals are particularly liable to go mad during the so-called "dog days" which extend from the first of July to the middle of August. The reason these days were so designated was because they covered a period when the dog star, Sirius, was above the horizon. They have no connection or association with the dog or the presence of rabies.

The proportion of persons who, after being bitten, will develop rabies has been variously estimated. Tardieu and Bouley in France collected 855 cases, of which 399 or 46.6 percent died. According to the report of the Pasteur Institute of Kasauli, India, in 1908, 35 percent of untreated cases developed rabies. The statistics of Doebert show a mortality of 14.8 percent in 122 untreated cases; Horsley gives 16 percent; Reifer 15 percent and Högyes 15 to 16.5 percent. In the United States, there are no available statistics; Brawner followed in the newspapers such cases of bites and deaths as were reported to have occurred within the Southern States, and of 80 persons untreated except for the mad stone, there were 16 deaths reported, 20 percent. The ratio 1 to 6 would probably approximate the truth.

RABIES TABLE PERCENTAGE MORTALITY.

| Character and site of bite. | By wolf. | By cat. | By dog. |
|-----------------------------------------------------------------|----------|---------|---------|
| Multiple and deep wounds about eye, nose or lips. | 100 | 70 | 60 |
| Multiple and deep wounds about other parts of face. | 80 | 50 | 50 |
| Multiple and deep wounds on other parts of uncovered body. | 40 | 40 | 30 |
| Single and deep wounds on finger or neck. | 20 | 20 | 15 |
| Deep on well-covered parts of the body. | 15 | 10 | 3 |
| Superficial on uncovered parts of the body. | 10 | 10 | 10 |
| Same with hemorrhage. | 2 | 2 | 2 |
| Contact of recent wounds with infected saliva. | 0.1 | 0.1 | 0.1 |
| Contact of wounds more than 24 hours old. | 0 | 0 | 0 |

This gives a general average of 24 percent after dog bites.

Generally speaking, the more numerous and the deeper the wounds, the greater the danger of rabies developing. The mortality rate is higher when wounds are inflicted on bare parts, due to the fact that the saliva is wiped off when the bite is through clothing and not so much infective material enters the injured part. The nerve supply also determines susceptibility to the development of rabies. Face bites are the most dangerous. Statistics show that 90 percent of face bites are fatal. Bites on the finger tips are next in importance. The mortality from bites on the hands and wrists is 65 to 70 percent; on the arms, 30 to 35 percent; on the limbs (lower), 20 to 25 percent; and on the trunk, 5 to 10 percent.

The incubation period is variable, from ten days to many months. In human cases, the long incubation period enables the individual to avail himself of the prophylactic treatment. The length of the incubation is influenced by a number of factors, such as—the species of animal, the period being longer in man; the site of the injury, the virus travels by way of the nerve paths to the central nervous system and there is a shorter incubation period in cases where the injury sustained is near the brain or large nerve trunks, such as head and face bites; children and females have a shorter incubation, in the former this is probably due to the fact that most of the bites are about the face and hands; severity of wounds, lacerated wounds involving nerve trunks result in a shorter incubation period for they permit the introduction of a greater amount of infective material. The danger increases in direct proportion to the number of bites even though they may be slight; a weakened condition of the nervous system will determine a shorter incubation period, alcoholics and neurasthenics, syphilitics and those suffering from other nervous diseases will exhibit an earlier manifestation of the condition.

Friedberger and Frohner give the following figures for the incubation period in animals: ox, four to eight weeks; horse, four to eight weeks; cats, two to four weeks; sheep, three to four weeks; poultry, six weeks to eleven months. Bauer gives the following periods for human rabies: males, 80 days; females, 65 days; children, 57 days.

There are two clinical types of rabies in animals, the furious, due to excitation or irritation; and the dumb or paralytic, due to rapid degeneration. Many cases present a mixed type and a few are atypical. In the furious type, the most marked symptoms are the change in disposition, either in the direction of increased irritability and ugliness or unnatural playfulness and exhibition of affection; an increased hypersensibility to all external stimuli and the tendency to wander off, returning after several days, ill and emaciated and wounded from engagements

with other animals. He may have traveled a distance of from twenty to twenty-five miles. There is also a marked tendency to snap and bite, this being merely an expression of intense irritability. In some cases, he bites himself, usually at the point where he himself was bitten. The voice is changed, being hoarse and of lower pitch than usual. He does not eat the customary food but betrays an abnormal appetite for sticks, stones, etc. Swallowing becomes difficult and the irritability increases until the animal becomes furious and convulsions appear or paralysis supervenes. Death is caused by the ascent of the paralysis to the respiratory centers.

In the dumb form or the "black tongue," in the vernacular of the South, there is not the frank exhibition of rabies seen in the furious form, and for this reason, it is particularly dangerous to man. Often the most conspicuous symptom is the spasm of deglutition and the paralysis of the throat muscles giving the observer the impression that the animal has a bone in its throat, and often, the attempt on his part to relieve the animal results in exposure to the disease. The animal does not bite, but the saliva is virulent and may cause rabies if it comes in contact with recent wounds or abrasions of the skin. The animal will lie quietly in some secluded spot and appear stupid. The paralysis of the jaw is early, the tongue protrudes and becomes covered with dirt which gives rise to the expression "black tongue." Death usually occurs in about three days, whereas the furious type lasts from six to eight days; 15 to 20 percent of all cases of rabies in dogs are of the dumb type.

The premonitory symptoms of rabies in man resemble those of any infectious disease. irritability, anorexia, insomnia, depression and malaise and some stiffness of the neck and shoulder muscles. In some cases the first intimation the patient has that something is wrong is in the difficulty experienced in taking a drink. There is a constriction of the pharynx which though transitory reappears each time an attempt is made to drink. The healed wound sometimes becomes sensitive with tingling and itching or even pain. There is a moderate rise of temperature. The spasmodic stage is initiated after about twenty-four hours, and spasm result from the slightest stimuli. Mental excitement ensues and the furious stage supervenes within the next forty-eight hours or less with its maniacal delirium. The patient may die at this stage or pass into a paralytic stage in which the muscles relax, the jaw drops and the patient is comatose, the pulse irregular and the temperature high. Death occurs within five or six days and is inevitable. The delirium and mania, the violent spasms with inability to swallow are fearful to observe and physicians no matter how extensive their experience with human suffering find it difficult to erase the horror of these cases from their minds. In neurotic or debilitated subjects or in cases of multiple lacerations, the phenomena of infection are those of paralysis.

Lyssaphobia or fear of rabies is sometimes met with in neurotic individuals, but usually the symptoms, hysterical in character, come on within a few days after the assumed exposure. The occurrence of symptoms like those of rabies at a period less than two weeks after exposure should be regarded as suspicious. The first manifestation may be a hydrophobia, fear of water, and a good imitation of a dog's bark and to some extent its action, the patient going around on all fours and biting at the furniture. It is stated that hypersensitiveness to drafts of air,

which is very common and pronounced in true rabies, is not simulated in hysteria. This may be tested by stepping unobserved behind the patient and fanning him. A convulsive seizure would serve to support a diagnosis of real rabies. Usually other hysterical stigmata are present and the symptoms are amenable to treatment and the patient recovers.

Up to the present time, there has been no cure for rabies after the symptoms have once appeared. Almost every drug in the pharmacopoeia has been suggested as a possible remedy but the cures reported have never been scientifically proved. At present the developed disease must be treated symptomatically.

Preventive treatment consists, first, in the proper care of the wounds inflicted by the biting animal. Bleeding should be encouraged, as a free flow of blood will carry off some of the virus. After thorough cleansing of the wound, it should be cauterized. For this purpose, fuming nitric acid is to be preferred. Cabot in a series of experiments found that he could save 76 percent of animals when nitric acid was applied to wounds inflicted by rabid animals. Other agents used for this purpose are turpentine, hydrogen peroxide and tincture of iodine. The cautery should be applied early, not later than a half to one hour, in order for it to be effective, and it should be thoroughly applied, enlarging the wound if necessary, in order to reach the deeper parts of the wound, exercising, of course, due caution. But it must be remembered that no matter how carefully the local treatment is conducted, this does not obviate the necessity for constitutional treatment, which consists of the injection of a specific vaccine. Immunization with a living virus simulates most closely that produced in the body in overcoming an infection. In man, so far, only attenuated virus has been used. This manner of producing an artificial immunity was first demonstrated by Jenner in prophylaxis against smallpox. Pasteur recognized that Jennerization had other applications and similarly used an attenuated culture of rabies virus to establish protection against rabies.

His method was to modify "street virus" or the virus which occurs in nature, by passing it serially through monkeys and then to bring the virus up to a fixed degree of virulence by serial inoculations of rabbits giving the "fixed virus," a virus which produces the disease constantly within six to eight days after inoculation intracerebrally. Later in his work the first step was omitted and only the rabbits were used to modify and fix the virus. Proper attenuation of the spinal cords of animals dead from fixed virus inoculation was secured by drying them over potassium hydrate. The initial treatments were made with cords that had been drying a long time. Pasteur began with a fourteen-day cord and carried the treatment on for eighteen days, the later treatments being made from cords which had not been hanging over the potassium hydrate for so long a time. The Pasteur treatment depends on the fact that the spinal cord of a rabbit that has been inoculated with "fixed virus" and dead of rabies in six to eight days loses its virulence from day to day so that at the end of fourteen days it is entirely incapable of producing rabies when inoculated into a healthy animal. Beginning treatment with an emulsion of a small piece of cord that is not virulent or only slightly so, the patient is inoculated daily for eighteen to twenty-one days with varying strengths of the virus thus gradually establishing an immunity against the infec-

tion. There is involved the same principle familiar to us all in the establishment of drug toleration.

Thirty-five years ago, Pasteur established the first Pasteur Institute in Paris, and, in the July after its establishment, an Alsace child who had been severely bitten by a known mad dog was admitted for treatment. Pasteur and his associates believed that the child would die anyway and that the treatment which had been a success with animals should be given a trial at least. The inoculations were made for eighteen days and it is said that during that time, and for many weeks after, Pasteur lived in constant terror. On all sides he was severely criticized but he was confident and went ahead. The next patient treated was Julipe, a shepherd who is now a concierge at the Institute, a place which he has held practically since his treatment. The success of the method was soon assured and it was rapidly adopted in many countries, and Pasteur Institutes established. Pasteur Institutes are of two kinds, public and private. Public Pasteur Institutes are established by endowment, such as the Pasteur Institute in Paris, by governments such as those of the United States Public Health and Marine Service at Washington, the New York City Board of Health, Mexico City, and the various State Boards of Health, by universities and the Pasteur Institutes of the Universities of Moscow and Bucharest. Private Pasteur Institutes are what the name implies.

The value of the Pasteur antirabic treatment can not be overestimated. Official records have never been satisfactorily kept and mortality percentages differ but it is safe to estimate the mortality rate in untreated cases at 20 percent. The Institute in Paris was established in 1886. From that time until 1911, 32,397 patients had been treated with 128 deaths, a mortality rate of 0.39 percent. The first Pasteur Institute in the United States was opened in 1890. During the first eleven years, 1,608 persons were treated with a mortality rate of 0.68 percent. In general it may be said that the mortality of treated persons is about one percent, one-half of which could not, from the nature of their wounds, be immunized. The duration of the immunity induced by treatment is apparently variable. Experimental animals show a complete immunity even after eighteen months, but in humans there is no way of determining its duration, but it is probably much shorter than that in animals. Williams reports a case in which the immunity was less than fourteen months. Failure to establish an immunity may be due to the virulence of the infection, proximity of the wound to the nerve centers, or delay in the administration of antirabic treatment.

It is apparent that many animals (rabbits) must be sacrificed to prepare the rabies vaccine, but it is a sacrifice which is necessary to the conservation of human life and even the life of other animals. The words of Charles Eliot tersely state the creed of the scientist: "The humanity which would prevent human suffering is a deeper and truer humanity than the humanity which would save pain or death to animals."

The ill effects from the treatment are, as a rule, of minor importance. Usually during the second week of treatment there is some local reaction, such as slight swelling and tenderness at the sites of injection (the injections are made subcutaneously, the anterior wall of the abdomen by choice) lasting from twenty-four to seventy-two hours. The slight induration remaining, is absorbed slowly. Stim-

son regards this as a manifestation of hypersusceptibility to the foreign nerve tissue which is introduced.

Obese people show more local reaction than do thin people and children. In the latter, various skin rashes, which usually take the form of a mild urticaria (hives), have been observed.

The patient may complain of nervousness or sleeplessness, or, on the other hand, of drowsiness, for the first few days after institution of treatment. There is occasionally some headache or a feeling of malaise, or even slight affections of the nervous system, as restlessness, numbness and tingling of the extremities, but these are of short duration. Paralyses have occurred very infrequently with some of the older modifications of the Pasteur method as well as with the classical Pasteur, cases having been reported from all except those modifications presented by Högyes and Harris. Various explanations have been offered for the occurrence of these paralyses, but none of them is wholly satisfactory. The predisposing factors seem to be alcoholism, syphilis, and neurasthenia, according to some authorities. It must be understood that these cases of paralysis do not impair the value of the antirabic treatment any more than the deaths resulting occasionally from the administration of anesthetics, or from anaphylactic shock after the injection of diphtheria antitoxin, can be considered arguments against their use.

There are no contraindications to the institution of antirabic treatment. As stated, syphilitics, alcoholics and people affected with nervous disorders are more apt to exhibit hypersusceptibility to the injections. Pregnant women have taken the course without any disturbance, and Stimson reports a case of a boy with St. Vitus dance who seemed improved after the injections.

The brilliant results made possible by the Pasteur method have been the marvel of the scientific world and any modifications of the original method which have been devised from time to time are no criticism of the efficacy of the mother method; rather they have been efforts to so simplify the Pasteur technique that it might have a wider application. The Pasteur method requires a long time to complete the treatment and attendance at an institute necessitates considerable inconvenience and expense, and a large amount of laboratory equipment and animal material must be had for the maintenance of treatments.

There are many of these modifications. All make use of the fixed virus, but the method of cord attenuation varies for the purpose of preventing the loss of the immunizing properties, by the use of artificial gastric juice, phenol, mechanical disintegration and antirabic serum, which has been found capable of neutralizing fixed virus outside the body. Some make use of a dilution of the fresh material and all have for their ultimate purpose a shorter treatment period with a vaccine of increased antigenic (immunizing) power.

Among the best known modifications are the following:

1. The dilution of the fresh fixed virus (Högyes).
 2. Fixed virus attenuated by heat (Babes).
 3. Fixed virus attenuated by phenol (Fermi).
 4. A mixed treatment with specific serum and vaccine (Marie and Reinlinger).
- Curative effects with antirabic serum (serum of sheep which have been immunized

against rabies infection) have not been satisfactorily established, but Babes claims that it is useful in combination with the vaccine, a mixture of the two being injected in severe cases.

Among the more recent methods devised and one which has attracted a good deal of attention because of its efficacy, safety, and standardization of dosage, which is not had in the classical method, is that of Harris, of St. Louis. Dr. Harris uses both the brains and cords of animals dead from fixed virus inoculation, grinds them to a paste, freezes and pulverizes and dries *in vacuo*. The resulting fine powder has practically the same infectivity as the fresh material and can be kept indefinitely provided it is properly protected from heat, light and moisture. It is a method which bids fair to still further reduce the small percentage of failures and to lessen the proportion of injurious or untoward results of treatment.

As to the indications for institution of antirabic treatment, a few brief statements may be made. The biting animal is the best witness for the patient and the diagnostician as well as for himself. In every accident, where there is a possibility of rabies infection involved, inquiry should be made as to the circumstances under which it occurred, the actions of the offending animal and the number of persons exposed to possible infection. While a biting dog may not always be a "mad dog," he is still a suspicious character, subject to arrest, but entitled to a trial by jury. The virus is present in the saliva several days before the onset of active symptoms (two to eight days), therefore, it is very unwise to permit the animal to escape or be killed as is so often done. The only exception to this general rule would be in the case of an animal already manifesting symptoms of rabies and so diagnosed by a veterinarian, or one which is "running mad."

Remlinger gives us the most helpful outline referring to indications for antirabic treatment.

| | | |
|----------------------------|----------------------------------------------------------------|----------------------------------------|
| If the biting animal | (1) Has died within 10 days after the biting | } Anti-rabic Treatment Indicated |
| | (2) Has been killed within 10 days after the biting | |
| | (3) Has disappeared within 10 days after the biting | |
| | (4) Is unknown to the individual | } Anti-rabic Treatment Indicated |
| | (A) Becomes ill with rabies | |
| | (B) Dies with suspicious symptoms of rabies or another disease | |
| | (C) Becomes ill but does not die | } No Treatment |
| | (5) Has remained alive and under observation for ten days | |
| | (D) Remains well both during and after the period | |

ABSTRACT OF DISCUSSION.

THE CHAIRMAN: This has been an extremely interesting paper. I believe it is the first time the subject of rabies has been presented in such a brilliant and popular form.

J. N. HURTY: I wish to make a personal acknowledgment of the excellent paper which has been read by Miss Stewart and to ask only one question. Why do you believe, Doctor, that we should take with some doubt the statement "that rabies will develop after ten or eleven months of incubation?" I happen to know an instance where it developed in eleven months without doubt. It seems to me there is no doubt that it will develop within that time, but why should you doubt it? We know that the infection of tuberculosis will lie in the body for years and years and finally develop. Why not so with rabies? I would just like to know why you said that. You seemed to be quite positive about it.

DR. E. G. STEWART: I understand there are only occasional cases. I did not mean to make it so positive that there would never be any, because there might be. I have a case that developed in six months, but such cases are very rare.

JACOB DINER: I am glad to have heard Dr. Stewart bring out the point of the sympathy for dogs and the lack of sympathy for human beings. Some cities are mightily interested in seeing that the poor dogs do not suffer, so they catch them by the hundred and asphyxiate them; but they do not permit the laboratories to obtain an animal for experimental purposes. In New York they have great difficulty in getting dogs for experimental purposes, and daily hundreds of dogs are asphyxiated by the Society for the Prevention of Cruelty to Animals.

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VACCINE THERAPY IN THE LIGHT OF FACTS.*

BY ALEXANDER M. ROVIN.*

Skepticism gives no impetus to the progress of science. On the contrary, it has long been recognized as an element of retrogression.

The human race has fought disease always in a spirit of optimism. This made possible what has been accomplished in conquering epidemics. Brilliant, practical and scientific discoveries in Bacteriology and Pathology have given us aid long looked for to clear up many disputed opinions concerning the control and treatment of infectious diseases.

Since the dawn of man, the human race in its struggle has endeavored to overcome many forces in nature and become master of the earth.

Intelligence is the great force in developing and cultivating man's faculties, in his adaptation of nature's forces, in overcoming diseases. Notwithstanding the many misdirected efforts of our civilization, we have made sufficient strides in general knowledge to make bacteriology, the basic science of preventative medicine, possible. By applying the discoveries made in bacteriology, the burden of disease is lightened, sickness becomes less frequent and less prolonged, a greater degree of health is secured, the efficiency of the individual and the nation is increased and life is lengthened and made more enjoyable. The eradication of bacterial infections looks more hopeful than ever, since standard bacterial suspensions have been successfully applied in the prevention and treatment of bacterial diseases. Bacterial vaccines offer the necessary stimulus in raising body resistance, preparing—so to speak—body cells (immunizing mechanism) for the adequate production of antibodies that make germ life and its destructive invasion impossible.

Antibodies are regarded as cell secreted destructive ferments and there are at least several varieties of them, *i. e.*,

- (a) Bacteriocidins, which kill bacteria.
- (b) Bacteriolysins, which dissolve bacteria.
- (c) Agglutinins, which clump bacteria and render them inactive.
- (d) Opsonins, which prepare bacteria for ingestion and digestion

by leucocytes, or so to speak, prepare them for injection by fighting cells that ingest bacteria. If the leucocytes are successful in ingesting all the bacteria, they are victorious and their victory means the overcoming of the infection. If, on the contrary, the leucocytes retreat

* Read before Scientific Section A. Ph. A., Indianapolis meeting, 1917.

or succumb in the struggle, they are destroyed by the poisons excreted or secreted by the bacteria, then the bacteria are victors in the perpetuation of the infection.

Antitoxins, which neutralize the poisonous substances produced by bacteria.

Wright demonstrated that the function of the antibodies called opsonins is to prepare bacteria for ingestion and digestion by the leucocytes. The name opsonin is from the Greek word *opsono* meaning, I prepare food for.

According to the opsonic theory of immunity, there are normally in the blood opsonins for a large variety of disease-producing bacteria. When a germ invasion takes place, tissue cells, if they are not crippled by the virulence of the organism, will immediately produce a large amount of antibodies including opsonins. In the meantime the leucocytes or phagocytic corpuscles of the blood rush to the site of invasion to repel the bacteria thus ingesting and digesting them, or in other words eating them up. This the phagocytes cannot do until the bacteria have been prepared by the opsonins.

Thus, we see that immunity to disease germs is produced in the healthy animal body by the action of the disease germs themselves which have the power of stimulating tissue cells to produce antibodies. Some of these antibodies destroy the bacteria or render them inactive and others aid the phagocytes to ingest them.

The reason such cell activities in antibody production do not always follow germ invasions, is due to the activities of the germ in the involved tissues. If the germs are very virulent, are capable of secreting active ferments which adequately digest the food on which they live, these activities of the germs have such a harmful influence on the vitality of the tissue cells that antibody formation is delayed or inhibited, thus allowing the germs to continue their ravages without hindrance, resulting in tissue destruction, pus formation or death. Antibody formation under such conditions is evidently developed at the periphery of the infected area; in tissues that are influenced by the infection but not too intensely involved. Here is where bacterial vaccines come to the rescue. By injecting organisms into healthy tissues, similar tissue cell activities for antibody production are aroused as when a germ of comparatively low virulence gains possession of the body. These antibodies then opsonize, agglutinate or otherwise influence the living organisms in the infected area and cause their destruction.

It is now well understood that many of the early failures in antibody production from the use of vaccines were due to the use of vaccines composed of but one variety of a certain species of germs, the vaccines not being polyvalent. From prophylactic and therapeutic experience we find that the immunizing power from a bacterial vaccine, composed of selected vigorous organisms of as many varieties of a given bacterial species as possible, possess higher immuno-producing properties (antigens) than single organism vaccines. Notwithstanding this clinico-scientific fact, standardized polyvalent stock vaccines have been most seriously attacked on the ground that they do not contain the precise strains which are actually present in the infection itself. It has been urged that a bacterial examination must be first made, and that then an antogenous vaccine be employed.

These objections sound plausible enough on the surface, but do not stand the test of critical analysis. The clinical results obtained by physicians show that a vaccine need not necessarily contain absolutely the same strain of streptococcus

that is present in the infection. There are real immunizing effects from different types of streptococci toward each other. Experience in the active clinical field, tends to show that even pneumococci will immunize against streptococci and vice versa. This can readily be accounted for on the ground that the pneumococcus and streptococcus are closely allied organisms and may be converted under special conditions from one to the other. The element of time in acute general infections is a far more important factor in the use of vaccines than complete identity of vaccine with infective organisms. If the clinical signs indicate the presence of a streptococcus infection, the results will be far better when a polyvalent stock streptococcus vaccine is promptly injected than when the slow, cumbersome process of taking a culture and making an autogenous vaccine is resorted to. Meanwhile, a culture for the purpose of making an autogenous one may be procured, but it will generally be found that the infection is under control by the time the autogenous vaccine is ready for administration.

It is hard, however, to understand how a great many well-meaning members of the profession do sometimes withhold the acceptance of facts dictated by the teachings of clinical experience, and cling to the opinions of ultra-scientific deductions. Facts and not opinions are the elements that make enlightened knowledge possible in the progress of applied therapeutics. Medical science is regarded as classified knowledge and recognized as such it must be arranged or so worked out that it can be applied to the best service of human society. The progress of any therapeutic agent as a remedial utility is not measured by theoretical conceptions but by its results in practical application. The contention for the advantages of any therapeutic remedy, whether presented by a professor of therapeutics in a medical college or by a humble practitioner, must be equally amenable to proof, and, dealing with vaccine therapy, it must be remembered that nearly a decade has elapsed since the use of bacterial vaccines in the treatment of infectious diseases was first begun; and it may be fairly said that any method of treatment which has passed through so long, so rigid and so thorough a probationary period must be ready for appraisal. The storm of extravagant enthusiasm with which a new remedy is apt to be greeted, has certainly passed after twelve years; there has been sufficient time to ascertain whether theoretical presumptions are borne out by practical experience; and, indeed, there must exist a great mass of actual proofs, tangible and verifiable data, clear and conclusive findings, necessary for a final judgment.

It may be said that in modern medicine no absolutely worthless remedy has had more than a brief existence in the medical armamentarium. When, therefore, a therapeutic procedure is more widely employed day by day, month by month, year by year, when it never loses but gains in appreciation, there is at least a strong presumption in favor of it. All this applies to the standardized polyvalent stock vaccines. They have obtained such support as the law of the survival of the fittest is capable of supplying.

As to the objection that standardized polyvalent stock vaccines contain species of bacteria which are not actually present in the infection, it loses its point also. Standardized polyvalent vaccines are harmless; no injurious result has ever been reported even from doses which far exceed those commonly given. Why not, therefore, give a combined polyvalent stock vaccine which will act prophylactically as well as therapeutically? Diphtheria antitoxin is given on the suspicion that

diphtheria bacillia may be present in the throat; why not, a vaccine containing the other organisms which are likely to make a habitant there? Why not a gonococcus vaccine which contains, in addition to the specific germ, those organisms which are common secondary invaders of the urethra? It is not fair to call this "shot-gun" treatment. The word "shot-gun" was coined for prescriptions which contain therapeutic incompatibilities; the standardized polyvalent vaccines, however, answer the purpose of a synergetic remedy, each constituent playing a definite therapeutic or prophylactic role.

Furthermore, careful study shows that most diseased conditions are due to a comparatively small group of organisms and most of these organisms gain entrance into the body through the mucous membranes. In the respiratory tract the most important invaders are the pneumococcus, streptococcus, staphylococcus, the micrococcus catarrhalis and Friedlander bacillus. In the digestive and urinary tract we find the colon bacillus, streptococcus, pneumococcus, gonococcus and staphylococcus. To vaccines which meet the bacteria usually found in the infections of the respiratory tract or those in the digestive or urinary tracts, the criticism of being unscientific can certainly not be fairly applied. Even in the specific infections such as whooping cough, measles, scarlet fever, influenza, gonorrhoea, etc., these ordinary pus organisms play an important role in the disease process, and for this reason the patients should receive mixed vaccines.

Theoretical preconceptions can not ultimately prevail against the facts of experience. Clinicians and physicians throughout the world are recognizing the importance of standardized polyvalent stock bacterins in medicine, and no amount of opposition can stem the tide. "Surround truth by bitter denial and contradiction," said Carlyle, "and you furnish it with the soil for its permanent growth." No better demonstration of this fact can be found than the gratifying growth of vaccine therapy—even now the subject of intense animosity.

A perusal of medical history, however, shows that every school of practical thought that brings forward new ideas must suffer animosity, suspicion and ridicule.

Polyvalent vaccine therapy, as an applied science, is evolved from all preceding stages of accomplishment and failure, and the research of many unselfish investigators who believed that it is in the actual doing and observing of things that we learn how to make profitable, logical and practical conclusions in conserving, preventing and treating the human race from the ravages of bacterial diseases.

In the words of the great Emil Von Behring "I have no fear that the thought which forms the basis of applied immunity in the prevention and treatment of infectious diseases, will ever disappear out of the practice of medicine." In fact standardized polyvalent bacterial vaccines stand as the keystone of preventative medicine, which is the triumphal arch of modern civilization.

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THE POSSIBILITY OF SUBSTITUTING CANNABIS FOR OPIUM.

BY H. C. FULLER.*

The requirements of the Medical Department of our Army have caused an unusual demand for several important drugs. Among these are opium and some of the salts of the alkaloids derived therefrom. The importance of opium preparations for relieving pain is indisputable. A scarcity of the crude material exists and the importation of opium for manufacturing purposes is not sufficient to supply satisfactorily the normal legitimate consumption of the products used by the medical profession. The sudden abnormal demands for the Army have created a critical situation.

Opium for manufacturing purposes came chiefly from Turkey, but to some extent from India. Due to the fortunes of war the Turkish source is no longer available and the British authorities carefully supervise the Indian supply. The cultivation of the opium poppy in China was prohibited several years ago and while diplomatic negotiations might prevail upon the authorities to permit a resumption of the production of the drug for export it is only a possibility at present. The opium poppy will flourish in certain localities in the United States, but up to the present no recent attempts have been made to produce opium in a commercial way. To establish the cultivation of the plant and prepare a marketable drug would require considerable experimental work and it is doubtful if a material supply could be obtained during the coming year.

Opium and the salts of its alkaloids are used for the relief of pain, insomnia, inflammation and irritation, oversecretion and systemic strain. Now from a study of the physiological properties of other drugs it is possible that preparations of *Cannabis indica* might be substituted for those of opium, because Cannabis will do many of the things that opium will do. Hobart H. Hare¹ states that "Cannabis is very valuable for the relief of pain, particularly that depending on nerve disturbances; it produces sleep; that it gives great relief in paralysis agitans to quiet tremors, and in spasm of the bladder due to cystitis or nervousness; that it is used in cough mixtures, and does not constipate or depress the system as does morphine."

H. C. Wood, Jr.,² states that "*Cannabis indica* is used chiefly for the relief of pain; especially of neuralgic character, although it sometimes will palliate even pain of organic origin. It is also at times of service for quieting conditions of restlessness and general discomfort—for instance in neurasthenia—and to relieve the distress of the late stages of incurable diseases, especially advanced phthisis. More rarely it is used as a mild somnifacient."

Finley Ellingwood³ states that:

"It is a remedy for disordered mental action. It is a remedy for disorders of motility, involuntary irregular muscular movements, especially if of a distressing character. It is a remedy to arrest or control pain, often acting advantageously in conjunction with other pain-quieting agents, intensifying, modifying or favorably influencing their action. It is a remedy for excitable and irritable hyperaesthetic

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¹ Hobart H. Hare—"Practical Therapeutics."

² H. C. Wood, Jr.,—"Pharmacology and Therapeutics."

³ Finley Ellingwood—"Materia Medica, Therapeutics & Pharmacognosy."

conditions of the genito-urinary organs, with increased functional activity and uterine disorders.

"This remedy has received a great deal of attention in its adaptability to cerebro-spinal meningitis, and with varying but encouraging results, especially in the earlier stages of irritation and congestion. It is useful also in hydrophobia, and in large doses it is certainly palliative to the distressing symptoms. Minute doses will cure some cases of tinnitus aurium.

"It is of much use in paralysis agitans, in relief of the lightning pains of locomotor ataxia, and especially in chorea and in general muscular tremblings. In chronic conditions accompanied by persistent pain, it ameliorates the pain.

"It cures many irritable states of the bladder. It is curative in strangury and painful urination with burning and scalding. In spasmodic stricture, with gelsemium or cinicifuga, it relieves quickly.

"It is soothing to irritable bronchial coughs and laryngeal spasm, and in coughs from tickling in the throat; also in whooping cough and in spasmodic coughs of whatever character. It is a common ingredient of cough syrups."

Cannabis is therefore a drug which is well established in the *Materia Medica* and its therapeutic usefulness has been demonstrated. No deaths from its use are on record, which is quite the contrast with opium.

Until recently all of our supply of Cannabis came from abroad but now it is cultivated in the United States. The drug is grown under carefully supervised conditions and its physiological activity is equal to, if not better than, the imported product. The Cannabis industry is now firmly established and sufficient quantities for extraordinary demands can be made available without difficulty.

The pharmacopoeia prescribes that the drug shall consist of the female tops, and a limit has been set on the amount of seed allowed, hence the specifications apply practically to tops which have not been fertilized by the male flowers. This necessitates the removal from the field, of the male plants as soon as the sex can be identified. It has been found that the leaves and tops of the male culs have equal or greater physiological activity than the drug from the female plants. Emphasis must be laid on the fact that this observation applies only to incompletely developed male plants, and whether or not ripe male tops would show less activity has not been determined, insofar as it applies to plants grown in this country. At the present time the important point is that the pharmacopoeia discriminates against the leaves and tops of undeveloped male culs which are just as good from a medicinal standpoint as the female tops.

While the physiological activity of the drug and its preparations will decrease to some extent after a lapse of time, permanent products can undoubtedly be evolved by a more careful study of the chemical properties of the active constituents. Little difficulty is now experienced in making permanent preparations of ergot, and the same results may be expected in the case of Cannabis. There is no reason why sterile, non-irritant, potent solutions of Cannabis analogous to Ergotin and other ergot products of the same type, should not be evolved, and be suitable for hypodermic injection, thereby rendering Cannabis an important remedy in surgical practice.

It is believed that the medical authorities might well consider seriously the possibility of using Cannabis preparations for some of the purposes for which those of opium are usually prescribed.

THE DETERIORATION OF DIGITALIS EXTRACTS.

BY HERBERT C. HAMILTON.

A recent publication on this subject by Pittenger and Mulford Jr.¹ is so revolutionary in character that while it would require a rather long series of experiments to cover the ground fully, a preliminary note on the subject seems called for because these results would lead one to infer that the tincture is practically worthless.

It is a well-known fact that digitalis has not yet been prepared in any absolutely stable form adapted to clinical use. The reason for this instability is still a matter of conjecture. Bourquelet² and Choay³ recognizing the presence of enzymes in the fresh leaves considered them to be the cause of the deterioration, because of enzyme action on the glucosides. The remedy suggested was that of exposing the crude drug before drying, to the action of strong alcohol vapors which killed the enzymes, dehydrated the drug and hastened the drying process, all of which are undoubtedly valuable but also more or less impracticable steps. That this is not the remedy, however, is demonstrated by the deterioration of the fluidextract, the tincture and the extract which have been extracted with alcohol strong enough to kill or to precipitate any enzymes present in the drug.

Some experiments in this laboratory carried over a number of years indicate that the presence of certain constituents of unknown character are largely but not entirely responsible for the observed instability. This, however, is reserved for publication later.

The object of this preliminary note is to call attention to data either already published or accumulated through years of close association with the extraction and testing of digitalis and to pave the way for a further publication of fresh data bearing directly on the point at issue, namely, whether digitalis is really as unstable as these results would indicate. If it were true that this valuable agent is so unstable, in many cases it would be practically worthless before it reaches the shelves of the druggist. This however is inconceivable since clinically the tincture is considered as valuable as any of the digitalis preparations.

Summarizing the data submitted by Pittenger and Mulford Jr., their results are shown in the following table:

| | | | |
|--------------------------------------------|---------------|--------------|--------------|
| Menstruum..... | 50% alcohol. | 50% alcohol. | 80% alcohol. |
| Character of drug..... | Not defatted. | Fat-free. | Fat-free. |
| Average loss on 5 samples in 8 months..... | 47.8% | 22.8% | 40.7% |

NOTE: These percentages of loss are based on the original assay.

From this one might conclude that a tincture is of little value unless made by extracting fat-free leaves with 50 percent alcohol, since the fat-free tincture with 80 percent alcohol is apparently no more stable than that with less alcohol. It seems improbable however, that either the higher percentage of alcohol or the absence of fats is responsible for the great loss in the third series.

Hale⁴ found the official fluidextracts, which are not fat-free, to have lost only an average of 6.6 percent in two years.

Roth⁵ observed an average loss of activity in 7 samples of fat-free tinctures of Digitalis of 14 percent in 6 months. Of this number two showed no loss while two others suffered an exceptionally high loss.

Houghton and Hamilton⁶ published the results of a series of experiments on deterioration which was summarized as follows:

LOSS OF POTENCY OF DIGITALIS PREPARATIONS WITH AGE.

| | No. sample. | Av. No. H. T. U.'s per cc. when mfg. | Years later. | Av. No. H. T. U.'s. | Av. yearly loss, %. |
|---------------------------------|----------------|-----------------------------------------|-----------------|------------------------|------------------------|
| Prep. Extract. | 11 | 260 | 5 | 160 | 8 |
| Fl. Ext. U. S. P. 7th Rev. | 8 | 72 | 6 | 55 | 4 |
| Fl. Ext. U. S. P. 8th Rev. | 11 | 55 | 3½ | 35 | 10 |
| Tincture U. S. P. 8th Rev. | 8 | 7 | 3 | 5 | 9 |

From the results in the above table and some other data not included the authors concluded:

1st. That a maximum average loss of 10 percent a year can be expected in tinctures or fluid extracts of digitalis.

2nd. That an alcoholic content of more than 50 percent in the extracting menstruum not only more completely extracts but also more nearly preserves the activity of digitalis.

This has been demonstrated so conclusively that the 9th Revision of the U. S. P. eliminates the low alcoholic menstruum and some manufacturers discarded it after only a short trial.

It seems improbable therefore that tinctures with this low alcoholic content would be uniformly found more stable than when extracted with 80 percent alcohol whether the drug was fat free or not. One cannot avoid the thought that perhaps each of the investigators quoted, obtained exceptional results due to certain unusual conditions; further, that no data either good or bad should be accepted as representing the average condition of digitalis after any particular period of aging.

Goodall⁷ summarizes some results of his as follows:

"Tincture of digitalis probably retains its full activity for one year but after that period deterioration of its potency to an important extent is likely to take place." This sounds like a reasonable conclusion, which, however, may not be verified by any single set of experiments.

The following data was obtained by my colleague, L. W. Rowe, from retests of six tinctures after an average period of six and one-half months. The tinctures were in every case extracted with 70 percent alcohol and in two cases fat-free drug was used.

These assays were carried out by the M. L. D. Frog-heart Method.⁸

SUMMARY OF ASSAYS OF TINCTURE OF DIGITALIS.
(U. S. P. MENSTRUUM.)

| Number. | Drug. | 1st test. | 2nd test. | Percent loss. | Age. |
|---------|--------------|-----------|-----------|---------------|--------|
| A | Fat-free | St'd | 90 | 10 | 8 mo. |
| B | Not defatted | 110 | 90 | 19 | 7½ mo. |
| C | Not defatted | 200 | 130 | 35 | 5½ mo. |
| D | Not defatted | 160 | 130 | 19 | 5 mo. |
| E | Fat-free | St'd | St'd | 0 | 8 mo. |
| F | Not defatted | 140 | 80 | 43 | 6 mo. |

Average loss on 6 samples—21 percent.

Average loss on fat-free samples—5 percent.

Average loss on other samples—29 percent.

The preceding data show very clearly that:

- 1st. The degree of deterioration varies with different lots.
- 2nd. The fat-free tincture made with 70 percent alcohol—two out of six samples—is apparently less subject to deterioration than that from the original drug.
- 3rd. The deterioration of tincture of digitalis is not so uniformly rapid as isolated experiments would indicate.

BIBLIOGRAPHY.

- (1) Pittenger and Mulford, Jr., *J. A. Ph. A.*, March 1918, p. 236.
- (2) Bourquelet, *Jour. de Pharm. et de chemie*, 1911, p. 149.
- (3) Choay, *Jour. de pharm. et de chemie*, 1911, p. 343.
- (4) Hale, *Hygienic Laboratory Bulletin* No. 74.
- (5) Roth, *Hygienic Laboratory Bulletin* No. 102.
- (6) Houghton and Hamilton, *Am. Jour. of Pharmacy*, Oct. 1909.
- (7) Goodall, *Br. Med. Journal*, 1912, Vol. I, p. 887.

FROM THE RESEARCH LABORATORY OF PARKE DAVIS & CO.,
DETROIT, MICH.

ESTIMATIONS OF MINUTE QUANTITIES OF EPINEPHRIN IN ANESTHETIC HYPODERMIC TABLETS.

BY TORALD SOLLMANN.

The chemical assay of such tablets is apt to be unsatisfactory, partly because of the small quantities involved, but mainly because the color-reactions of epinephrin are not always reliable in the presence of other substances.

A biologic assay is much more rapid, and possesses very fair accuracy. The most suitable quantitative method for this purpose consists in the intracutaneous injection of a dilute solution into the skin of the human forearm. The quantity of epinephrin is judged by the extent, intensity and duration of the blanching, as compared with the effects of a known solution, injected at the same time. If the solution contains an anesthetic, the quantity of epinephrin may also be judged by the duration of the anesthesia. This is a useful check on the blanching.

The solution should be very dilute. In my experiments I employed a dilution of epinephrin of 1 : 800,000. This was easily distinguishable from a dilution of 1 : 1,600,000. Other skins may do better with somewhat different concentrations. The dilutions should be made with a boiled 1 percent solution of sodium chloride.

The method of injection is simple. One or 2 Cc. are drawn into a Luer syringe, having a very fine needle. The skin of the inner surface of the forearm is cleansed with a pledget of cotton moistened with alcohol. The point of the needle is thrust *into*, not under, the skin, holding the needle at a very slight angle. Enough of the solution (about 0.2 to 0.4 Cc.) is injected to raise a wheal of about 7 mm. diameter—the exact quantity or size of the wheals is not very important, if all are made nearly alike. Three injections are made of each solution, across the arm. The next solution is then injected in the same manner, about an inch distant. The sensation is tested with a bit of cotton, twisted to a point. A sketch is made of the area of blanching. The observations are repeated at intervals first of 5 minutes, later of 10, 20 and 30 minutes, until a fair comparison is secured. It is advisable to make one of the known solutions of the same strength as the sample to be tested, and another of one-half this strength.

The injections are practically painless, but the skin may remain slightly swollen and hardened for some days.

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SECTION ON EDUCATION AND LEGISLATION

PHARMACOLOGY AND THE RECOGNITION OF PROFESSIONAL PHARMACY BY THE UNITED STATES GOVERNMENT.*

BY FRANCIS EDWARD STEWART.

The failure of the Government to recognize pharmacy by providing a place for a representative on the Council of National Defense, or providing a general pharmaceutical board similar to the General Medical Board of the Council of National Defense or providing a pharmaceutical corps in the United States Army was strongly protested by the pharmaceutical and drug interests of the entire United States. The action of Professor Frederick J. Wulling, President of the American Pharmaceutical Association, in this connection is already a matter of record and is, therefore, well known to the membership of the Association. The Committee on National Defense appointed by Professor Wulling met at Washington, Wednesday, May 2, in conjunction with a similar committee appointed by the National Drug Trade Conference. Mr. Samuel L. Hilton, chairman of the A. Ph. A. Committee, presided.¹

At this meeting the National Retail Drug Association was represented by its legal counsel, Eugene C. Brokmeyer, Esq., Washington, D. C., who proposed an alignment of the entire drug interests of the United States to secure recognition by presenting a bill to Congress on the subject. This suggestion was modified and incorporated in a resolution offered by Professor James H. Beal, suggesting that a plan be adopted, placing before the Government authorities a carefully studied out prospectus showing how pharmacy and the several industries represented by the chemical and drug trade could be of service to the Government during the war, and also suggesting that a representative of the drug interests should be made a member of the Advisory Commission of the Council of National Defense. This motion was seconded and unanimously carried.

Mr. Joseph W. England, secretary of the Council of the A. Ph. A., in a letter addressed to the editor of the *Journal of the American Medical Association*, published June 16, 1917, called attention to the fact that there is no provision whatever for a pharmaceutical corps in the military organization. In the same edition of the *Journal of the A. M. A.* appeared an editorial endorsing the suggestions in regard to the establishment of a pharmaceutical corps in the United States Army. A letter was published in the *Journal of the A. M. A.* June 23rd, by Dr. S. Solis Cohen of Philadelphia, endorsing the editorial and Mr. England's letter, and suggesting that the physicians write the Medical Department of the Army in support of the movement.

The Section on Pharmacology and Therapeutics of the American Medical Association at its recent annual meeting held in New York City, passed a resolution

* Read before Section on Education and Legislation, A. Ph. A., Indianapolis meeting, 1917.

¹ Members of the A. Ph. A. Committee on National Defense: Samuel L. Hilton, Chairman, James H. Beal, J. W. England, Lewis C. Hopp, Caswell A. Mayo, Joseph P. Remington, H. H. Rusby, F. E. Stewart, Henry M. Whelpley.

in favor of establishing such corps and referred it to the House of Delegates. The House of Delegates endorsed the resolution and appointed a committee to consider the subject, of which Dr. Charles H. Mayo, president of the A. M. A., was made chairman.

President Adolph Schmidt of the Pennsylvania Pharmaceutical Association, at the last annual meeting, which was held in Pittsburgh, appointed a Committee on War Defense, of which the following is a list of the members: F. E. Stewart, Phila., Chairman; Julius A. Koch, Pittsburgh; John K. Thum, Phila.; Louis Frank, Wilkes-Barre; and Joseph W. England, Phila.

This committee was appointed in response to a resolution presented by Mr. Joseph England, offered in connection with his paper suggesting the establishment of a pharmaceutical corps in the United States Army.

The various drug interests of Philadelphia assembled at the Philadelphia College of Pharmacy, June 26th, and organized the National Pharmaceutical Service Association, with Mr. Geo. M. Beringer president and Mr. Robert P. Fischelis secretary-treasurer. The Executive Committee appointed consists of the following members of the various associations represented: J. W. England and Walter B. Smith of the Philadelphia Drug Exchange; Ambrose Hunsberger and Eugene G. Eberle of the Philadelphia Branch of the American Pharmaceutical Association; Samuel C. Henry and J. C. Peacock of the Philadelphia Association of Retail Druggists; Henry Kraemer and Robert P. Fischelis of the Philadelphia College of Pharmacy; Dr. W. D. Robinson and Mr. George M. Beringer, ex-officio. This committee is to coöperate with the Committee on War Defense of the Pennsylvania Pharmaceutical Association, of which Dr. F. E. Stewart is chairman, and is now engaged in perfecting a bill for the establishment of a pharmaceutical corps, for presentation to the United States Congress. The title of this bill is "An Act to Increase the Efficiency of the Medical Department of the United States Army, to Provide a Pharmaceutical Corps in the Department and to Improve the Status and Efficiency of the Pharmacists in the Army."

The bill presented by the National Pharmaceutical Service Association is known as the Edmonds Bill. As this bill has been published quite extensively by the pharmaceutical press, you are all familiar with its details. As you know, the bill requires that the membership of the proposed pharmaceutical corps shall consist of graduates of reputable pharmaceutical schools and shall pass a physical and mental examination of a character to insure proper fitness for the service. Also that the proposed pharmaceutical corps shall be a part of the medical corps of the Army. Such requirements place the pharmacist in position to receive a commission in the pharmaceutical corps of the Army, to be promoted to higher rank in accordance with the regulations of the Medical Corps. In the words of the bill:

Any American citizen, graduate of a reputable school of pharmacy, of good moral character and between twenty-one years and forty-five years of age, both inclusive, who can pass the usual physical examination required for appointment in the Medical Corps and the professional examination which shall include tests of skill in practical pharmacy and of proficiency in the usual subjects of a standard school of pharmacy course, may be appointed as a pharmacist in the Pharmaceutical Corps.

An original appointment as pharmacist under this Act shall entitle the appointee to the rank and commission of second lieutenant. After the expiration of the first five years of service, with honorable discharge, the pharmacist may re-enlist at any time within six months from the date

of expiration of such prior service and he may then apply for examination for promotion, and, if his physical examination and the professional examination in subjects of advanced pharmaceutical education are satisfactory he is eligible for promotion to the rank and commission as first lieutenant, Pharmaceutical Corps. After fifteen years of service in the Pharmaceutical Corps, a pharmacist with the rank of first lieutenant Pharmaceutical Corps may apply for examination for promotion. If he successfully pass the necessary examination in post-graduate pharmaceutical studies and, if, in the opinion of the Pharmacist Director such promotion is merited, he shall be promoted to the rank and commission of Captain Pharmaceutical Corps.

The remainder of the proposed Act provides the age limit, necessary physical and educational qualifications for admission to the Corps; states that pharmacist apprentices shall act as assistants to the pharmacists and to the Hospital Corps; provides the method for advancement and promotion of pharmacist-apprentices; authorizes the Secretary of War to appoint boards of three examiners to conduct professional examination described in the Act; provides for the transfer of pharmacists and druggists now ranking as master hospital sergeant, hospital sergeant, sergeant first class and sergeant, by which they may be transferred to the Pharmaceutical Corps; and also provides for as many contract pharmacists as may be necessary for emergencies, said contract pharmacists not being permitted to carry commission or right of retirement in accordance with the Army regulations.

Sections are also included in the proposed Act to fix the rank and precedents of the members of the Pharmaceutical Corps, the same to be in all respects the same as in the case of appointees to the Medical Corps of the Army. The proposed Act also provides for fixing the pay of the members of the Pharmaceutical Corps, the pay of the pharmacist apprentice to be \$33.00 per month; that of the pharmacist apprentice first class, with rank of sergeant to be \$37.00 per month; and for each re-enlistment in this service the usual increase allowed in the Army for honorable discharge and re-enlistment. No section has yet been included to fix the pay of the pharmacist director, deputy director, captain and lieutenants, except that all officers of the Pharmaceutical Corps shall receive the same pay, awards and allowances as the officers of corresponding rank and length of service in the Medical Corps of the Army, and shall be eligible to retirement in the same manner and under the same conditions.

As a member of the Committee on National Defense of the A. Ph. A., and chairman of the Committee on War Defense of the A. Ph. A., I have had occasion to confer with prominent members of the Medical Corps of the Army and Navy and find that the suggestion in regard to the establishing of a pharmaceutical corps is meeting with considerable opposition. This opposition is caused in part by the fear that the establishment of such a corps would give dignity and prestige to the nostrum business and prove of very little benefit to professional pharmacy. The cause of the opposition is also due to the belief on the part of many that the present arrangement in relation to the supply of medicinal products and pharmaceutical service is entirely adequate and satisfactory. The objection to officially recognizing pharmacy by establishing a pharmaceutical corps or by any of the other methods suggested, because that such recognition might give dignity to the nostrum business, is well worthy of the consideration of the American Pharmaceutical Association. It is to this phase of the subject that I now beg to call attention. Let us, therefore, first consider what is meant by the nostrum business.

WHAT IS MEANT BY THE NOSTRUM BUSINESS?

The name "nostrum" is derived from the Latin word, *noster*, ours, and is defined by Webster's Dictionary as "a medicine recommended by its preparer, especially a medicine the ingredients of which are kept secret by the individual or proprietor; a patent medicine; a quack medicine."

The following definition is generally accepted, even by the manufacturers of so-called proprietary medicine, as a correct description of what is meant by a "proprietary or patent medicine."

The expression "proprietary or patent medicine" shall be taken to mean and include every medicine or medicinal compound manufactured, prepared, or intended for the use of man or animal, the name, composition, or definition of which is not to be found in the United States Pharmacopoeia or National Formulary, or which does not bear the name of all of the ingredients to which the therapeutic effects claimed are attributed, and the names of all other ingredients except such as are physiologically inactive, conspicuously, clearly and legibly set forth, on the outside of each bottle, box, or package in which the said medicine or medicinal compound is held, offered for sale, sold, or given away.

According to the above definitions, much of what we are so fond of calling modern pharmacy is in fact the nostrum business, for it certainly partakes of its character. We all recognize under the name "patent medicines" the package goods placed on the market by manufacturing houses and advertised in the newspapers for self-medication, claiming to be specifics, cures or remedies for various diseases. But we have never fully realized the fact that every secret or semi-secret medicinal preparation advertised as a *specific* or *cure* for disease, practically belong to the same category, no matter whether prepared by the manufacturing houses, or retail druggists, or whether advertised in the newspapers, or in the medical journals, or whether advertised (recommended) by word of mouth by druggists to their customers. For when we test such products by the definition given by Webster, we find that they all possess the nostrum characteristics to a greater or less degree, *i. e.*, they are recommended by their preparers as medicines; they are secret or semi-secret in composition or in method of preparation; they are claimed by their manufacturers as proprietary medicines; they are claimed to be therapeutic inventions.

To the extent that nostrums are prescribed by physicians and recommended by pharmacists and pharmaceutical manufacturers, the medical and pharmaceutical professions are engaged in the nostrum business. There is no use for the pot to call the kettle black, and when the physicians condemn manufacturers and pharmacists for preparing, dispensing and advertising nostrums, they should remember that when they prescribe them they are *particeps criminis*. And when pharmacists charge physicians with violating their code of ethics by prescribing nostrums and using them for dispensing to their patients, they in turn should remember the command first to remove the beam from their own eye before attempting to remove the mote from their brother's eye.

WHAT IS MEANT BY TRUE PHARMACY?

Pharmacy, as defined by the Pharmaceutical Syllabus, published by the National Committee representing the American Pharmaceutical Association, American Congress of Pharmaceutical Faculties and the National Association of Boards of Pharmacy, is a branch of pharmacology. "Pharmacy, as a branch of pharmacology, is the science and art of preparing, preserving, compounding and

dispensing medicines." Pharmacology is defined as "The science that treats of drugs and medicines; their nature, preparation, administration and effect; including pharmacognosy, pharmacodynamics, therapy dynamics, pharmaceutical chemistry and pharmacy.

The requirements of true pharmacy demand that the source or genesis, physical, chemical, physiological and therapeutic properties, methods of preparation, standardization and proper dosage of all medicinal drugs and chemicals used for the prevention of disease and for the healing of the sick shall be published for the benefit of science and the use of the medical and pharmaceutical professions in conducting their respective vocations.

Professional requirements demand that this knowledge shall be classified in the forms of science and protected by changeless nomenclature; that the methods of manufacturing each *materia medica* product, and preparation of the same, shall be completely disclosed, and that the manufacture and sale of such article shall be open to free competition.

It is also required that the claims made for the therapeutic properties of the article shall be impartially discussed in the professional societies and press, and verified by competent observers using the same in treating the sick, and that the knowledge thus evolved shall be taught in the medical and pharmaceutical schools and colleges and embodied in scientific medical literature. By scientific medical literature is included pharmacopoeias, dispensaries, text books, monographs, and other literature dealing with *materia medica* products in a scientific manner.

Professional requirements also demand that the entire *materia medica* and its preparations shall be reduced to common standards and the same protected by law, as illustrated by the U. S. Pharmacopoeia and National Formulary, protected by the National and State pure food and drug laws, by which the U. S. Pharmacopoeia and National Formulary have been made legal standards.

It is, therefore, apparent that pharmacy and drug therapeutics are closely related and mutually dependent branches of medical science and practice; that co-operation between the medical and pharmaceutical professions is essential to the development of both, and that such coöperation can only be secured under a professional, fraternal, or coöperative system in which all concerned donate their researches and experiences to the common fund and share in the results of the co-operative work.

THE LEGITIMATE FIELD OF DOMESTIC PRACTICE.

Anyone who has the true welfare of the public at heart will not refuse to endorse the efforts of those who are endeavoring to teach the people how to live in such manner as to prevent disease. Neither would they hesitate to recommend that the public should be instructed in the use of ordinary therapeutic measures. There is, therefore, a legitimate field for domestic practice, the limits of which must be determined by the amount of knowledge possessed by the individual.

The legitimate field of domestic practice is the same as that of professional practice except that it is necessarily more limited than the field of the educated physician.

Knowledge of disease and methods of prevention and cure are still very limited even in the field of professional practice. This knowledge is not fixed but is constantly developing, so that what is accepted to-day may be rejected to-morrow for

something better because of more recent discoveries. Conditions once called diseases are now known to belong to the phenomena of resistance to disease. Cough is an example of this. When obnoxious materials, be they secretions or foreign matters, accumulate in the bronchial tubes cough is necessary for their expulsion, so that in a large proportion of cases no treatment of cough is desirable. The cough is merely an attempt on the part of the irritated mucous membranes to expel substances causing the irritation. Manifestly there are conditions in which the use of a cough remedy is undesirable.

There are two sets of cases in which cough remedies are indicated, namely, when the cough is out of all proportion to the amount of material to be expelled, or when, owing to muscular weakness and lack of irritability of the mucous membrane, the cough is not sufficient for the expelling of the secretions which gradually accumulate in the lungs, fill up the bronchial tubes, and may finally cause death by suffocation. If it were possible to give the patient a cough remedy that would instantly stop his cough, the remedy would kill the patient by permitting him to choke to death. It is evident therefore, that the treatment of cough is dependent upon three factors: First, it must be determined whether the case is one requiring a cough remedy; second, the proper cough remedy must be selected suitable to meet the condition, and third, discrimination as to dosage, frequency of repetition, time to discontinue, nature of complications that may arise (caused for example, by mixed infections), and proper care of the patient during sickness and convalescence. To the extent that the individual possesses this knowledge he is justified in treating himself or one of his family for cough. The druggist who, without this knowledge, recommends a cough medicine to a person equally as ignorant as himself, is in the position of the blind leading the blind. Proper domestic practice in such cases can only be attained when the druggist and the patron are sufficiently educated in therapeutics to make a correct diagnosis, select the right remedy and apply it in the right way.

The pharmacist is constantly called upon to supply cough remedies and information concerning them. He is supposed to be an expert in drugs, that is, expert in the knowledge of drugs and their uses, not an expert in the knowledge of diseases and their treatment. But he must acquire a certain amount of knowledge of the latter to be sufficiently proficient in the former. Unfortunately, he is not taught this knowledge in the pharmaceutical schools.

Wise public policy demands that the practice of medicine and pharmacy shall be conducted by persons who have been properly educated, trained, and licensed by boards of examiners, and that unlicensed practitioners shall not be permitted to invade the field of the physician and pharmacist. Owing to a strange anomaly of law, any person, no matter how ignorant or venal, is permitted to invade the field of the physician and pharmacist and practice both medicine and pharmacy at wholesale and without license. All that is required is the use of a sign "Manufacturing Pharmacist" or "Manufacturing Chemist" and to go into the nostrum business, limiting sales to wholesale transactions. The reason for this anomaly is, the nostrum manufacturers have been sufficiently influential to secure exemption from the medical and pharmacy laws.

What did the so-called pharmaceutical profession do to protect the public against this nostrum invasion? Unfortunately with few exceptions the pharmacists

instead of defending professional pharmaceutical practice and protecting the public from unlicensed practitioners who invaded the field, commercialized their calling and aided in converting the vocation into the nostrum business until it became practically impossible for the medical profession and the lay public and even the pharmacists themselves to recognize the difference between true pharmacy and the so-called "patent," "proprietary" or "quack" medicine business. Will someone please tell me where the line exists that separates true pharmacy from the nostrum business? Where does true pharmacy end and the nostrum business commence?

It has been truly said that the drug business differs from every other business on earth in that the druggist cannot recommend or advertise his wares without becoming a quack and a pretender. The very fact that this is true clearly shows that pharmacy cannot be practiced as a commercial business employing commercial methods of advertising, without ceasing to be pharmacy and becoming a menace to public health. It is not surprising, therefore, that the Surgeon General of the Army and his advisors regard so-called pharmacy as unworthy of recognition by the establishment of a pharmaceutical corps in the Army. The Surgeon General has doubtless conferred with his advisors on the subject and finds that physicians, sanitarians, political economists, philanthropists and the educated lay public quite generally share the opinion that much of what is now called pharmacy is nothing more nor less than the nostrum business.

We believe that the establishment of a pharmaceutical corps in the Army, the same to be conducted in the manner described in the Edmonds Bill, would not only increase the efficiency of the Medical Corps, but also exert a salutary influence on pharmaceutical practice in civil life. We believe that it would aid in separating the pharmaceutical sheep from the nostrum goats that are bleating everywhere. We believe that it would give prestige and influence to the practitioners of true pharmacy in the entire United States. We believe that it would excite interest in pharmaceutical education and thus promote the welfare of our educational institutions. We believe that it would aid in restoring the confidence of the medical profession and the public generally in drugs as remedial agents, and thus materially promote the public health. Therefore, we favor the Edmonds bill as a step toward the separation of true pharmacy from the nostrum business and restoring it to its position as a branch of medical science and practice.

MILITARY RECOGNITION OF PHARMACISTS.*

BY L. E. SAYRE.

So much has been said upon the proper recognition of the pharmacist in military service that it would seem rather rash for one to use this title for a paper at this time without some apology.

However, the importance of national service which our profession is capable of rendering in this hour of our country's need will excuse the use of over-used titles and material.

In the report of the Committee on Drug Reform, presented in this Section, the statement is made that the problem of the proper representation of the pharma-

* Read before Section on Education and Legislation, A. Ph. A., Indianapolis meeting, 1917.

cist in the Army had been squarely faced. President Wulling, it was stated, had been active in representing the Association in the investigation of this subject which, while it is very important for pharmacy as a whole, and important as being among the agencies which will stimulate and activate pharmacy's share in military service—service which pharmacy is capable of rendering—it is of little consequence in stimulating patriotism and loyalty which the profession has already shown through its noble young men. Let it be said at once, if pharmacy, in urging proper recognition, is taking advantage of an opportunity to lift itself beyond the grade it deserves, this should be denounced as a species of cupidity unworthy of our noble calling. This is a time for proving our loyalty, rather than for seeking profit by any process of appeal to our Government whose needs at this time are so desperate.

If, however, the military service of the pharmacist will be made more efficient, leaving out of consideration all other points—important as they may be considered—it is the duty of this body to see to it that the greatest efficiency of the pharmacist in national defense is made possible. If the pharmacist is discriminated against by any antagonistic influence, thus hindering the full measure of efficient service, this influence should be discovered and if possible removed, for this, in a measure we not only owe to the profession but is due to the country we wish to serve.

Notwithstanding this lack of proper recognition, the thing to do above all is to equip ourselves to perform properly the duties in the station we now occupy. If we can show a willingness to take up these duties despite discouragements we shall be in a better position to present our petition for the introduction of pure pharmacy in the various arms of the defense service.

It is gratifying indeed that the medical profession is recognizing the importance of the services of the pharmacist. In an editorial of the *Journal of the American Medical Association* of June 16, 1917, it is stated that,

"It will materially lighten the arduous duties and responsibilities of the physician to have in the army trained pharmacists who will be able to give intelligent coöperation. But it is imposing too great a strain on the patriotism of those whose special knowledge is obviously a large asset to the army, to expect them to enlist as privates without any recognition of their national worth.

"Pharmacists should be given a rank commensurate with their importance, first because it is but simple justice to the pharmacists themselves, secondly, because the usefulness of the medical corps will be greatly augmented and, lastly, and of most importance, because the efficiency of our army demands it."

The report of the Committee on Drug Reform, alluded to before, calls attention to the suggestion of Dr. A. R. L. Dohme, namely: That the six National Drug Associations constitute a Conference, through appointed delegates, to represent the drug trade on all such important questions as this. Would it not be well to have this suggestion discussed at this annual meeting. Such a plan would bring the strength of the whole body of pharmacists to bear upon all such important matters.

In connection with this matter of military recognition it is worthy of note that the Pennsylvania and the Wisconsin Associations have adopted resolutions

which are deserving of special notice. As passed by the latter association, they are as follows:¹

"WHEREAS, The public welfare at all times, especially during the war, demands that the services of both the medical and pharmaceutical profession and of all of the branches of the drug trade be fully utilized,

"WHEREAS, A medical sector has been created in the Advisory Commission of the Council of National Defense, no representation has been provided for pharmacy and no adequate representation for the drug trade; therefore, be it

"Resolved, That it is the sense of the Wisconsin Pharmaceutical Association, in thirty-seventh annual convention assembled at Milwaukee, June 25-29, 1917, that proper representation in the war administration for pharmacy and the drug trade forthwith be provided; and further,

"Resolved, That a copy of this resolution be forwarded to the Secretary of War and the Secretary of the Navy, and to all organizations working to this end."

These resolutions embody, in substance what might well emanate from this Association. Might it not be well for this Section to petition the General Session to adopt some such resolutions? If it were possible to create soon a federation of the principal drug associations as above referred to, would it not be wise for this Association to initiate this movement and petition for this federation to procure a hearing in Washington on this important matter of proper recognition of pharmacists in military service?

THE GREAT DUTY.

As we go about our daily tasks in peace and safety men are dying every minute on the battlefields of Europe to save civilization. Our own gallant soldiers are shedding their blood in France and our sailors engulfed in the waters of the Atlantic as they go in defense of America's rights and honor.

Upon our performance of the work committed to us depend the lives of thousands of men and women, the fate of many nations, the preservation of civilization and humanity itself; and the more efficient and prompt we people of America are in doing our part, the more quickly will this war come to an end and the greater the number of our soldiers and sailors who will be saved from death and suffering and the greater number of the people of other nations released from bondage and saved from death.

To work, to save, to economize, to give financial support to the Government is a duty of the nation and to the world and it is especially a duty to our fighting men who on land and sea are offering their lives for their country and their countrymen.—*The New Age*.

¹ Action was taken thereafter at the meeting in Indianapolis.

HISTORICAL SECTION

THE HISTORY OF MERCURY.*

BY OTTO RAUBENHEIMER.

Owing to the great importance of mercury in medicine, pharmacy, dentistry, chemistry and technology, its history should prove of interest to the members of the American Pharmaceutical Association, and especially those attending the sessions of the Historical Section.

The etymology of the word is worth knowing. The present Latin name *Hydrargyrum* is derived from the Greek *Hydrargyros*, which means "Water Silver" or "Liquid Silver." The English name mercury comes from the Latin *Mercurius*, the god of commerce and special patron of messengers and thieves in Roman mythology. This name was evidently given to the metal on account of its mobility and volatility.

The history of mercury dates back to old China, India and Egypt. It is said that the Chinese already used it as a remedy against syphilis. In old documents mercury is mentioned by the great Greek philosopher Aristoteles (384-322 B. C.) and by Theophrastus, the father of botany about 315 B. C. The name *Argentum Vivum*, that is, "Alive Silver" or "Quicksilver," was given to the mercury found in the liquid state. Mercury obtained from cinnabar was named *Hydrargyros* in Greek or *Hydrargyrum* in Latin by Dioscorides (about 50 A. D.), the father of the old *Materia Medica*, who in his works also points out that cinnabar was frequently confused and adulterated with minium, the red oxide of lead. The Ancients supposed that *Argentum Vivum* and *Hydrargyrum* were not alike and possessed different properties. The alchemists named the metal *Mercurius vivus* on account of its properties.

The name *Mercurius* and the association of the metal with the smallest of all major planets, the planet nearest to the sun, is first authentically mentioned in a list of metals by Stephanus of Alexandria in the 7th century. It is, however, well known that the old Babylonians connected the planets and their gods, and with them "Naba" or Mercury was the god of revelations and priestly wisdom. The star-gods were very prominent in the cultus of Babylon.

Plinius, the Roman historian, and Claudius Galenus, the Roman physician-pharmacist, speak of mercury as a poison! According to Pliny, the Romans obtained about 10,000 pounds of cinnabar every year from Almaden in Spain.

The important use of mercury of extracting gold and silver dates back to the Ancients. Pliny records in his 7th book that quicksilver is employed for separating the noble metals from earthy matter and also in gilding.

Mercury was used by the Venetians in the preparation of tin amalgam for silvering mirrors as early as the 16th century.

The Arabs inherited their medical knowledge from the Greeks, the Arabs

* Read before Section of Historical Pharmacy, A. Ph. A., Atlantic City meeting, 1916.

introduced chemicals into pharmacy and medicine, and the Arabian alchemists enriched chemistry with a great many discoveries. Among the latter, Abu-Musa-Ischafar-al-Sofi, commonly called Geber, which is the translation of his middle name (699-756), was the so-called *Magister Magistorum*. He described and used the metal mercury and was perhaps the first to recognize its valuable property to form amalgams, inasmuch as it softens gold. Geber, furthermore, was the first to prepare red precipitate and to sublime mercuric bichloride or corrosive sublimate.

In connection with the history of mercury it might be well to mention Geber's theory as to the chemical composition of metals, which found universal recognition up to the later Middle Ages. All metals consist of sulphur and mercury, which are present in different proportions and in different degrees of purity. Sulphur, on account of its combustibility, causes the alteration of metals when heated, and mercury imparts lustre, malleability, fusibility and other metallic properties.

Rhazes (850-923), the director of the Bagdad Hospital and the Galen of his time, introduced mercurial ointment and employed bichloride externally against the itch. Mesué (925-1015) used mercury in his *Emplastrum expertum ad scabiem* and in various skin diseases. Avicenna (980-1037), the greatest of all the Moorish physicians, considered corrosive sublimate as the most deadly of all poisons, but was the first to express his doubts as to the poisonous nature of the metal, having observed that it passed through the body unchanged and without any bad effects.

During the medieval period mercury became an internal remedy against worms in cattle and sheep. According to such an authority as Sprengel, Pierandrea Matthioli (1501-1577), the celebrated botanist and physician to Archduke Ferdinand and Emperor Maximilian II of Austria, was the first to administer the metal mercury internally to human beings. The internal administration of mercurials was popularized by Paracelsus (1493-1541), whose full name is Philippus Aureolus Theophrastus Paracelsus Bombastus von Hohenheim. This iconoclast (image-breaker) of medicine became the founder of iatrochemistry or medical chemistry and deserves an everlasting credit for introducing the mercurials into the materia medica as a specific against Morbus Gallicus or syphilis.

"One night with Venus and seven years with Mercury" has been the proverbial adage ever since! Paracelsus administered corrosive sublimate, red precipitate and mercuric nitrate. He also originated the process of preparing red mercuric oxide by heating the nitrate.

As a remedy for syphilis, mercury was employed in the form of fumigations, frictions, ointments and plasters. Mercurial plaster was originated by John de Vigó of Naples, physician to Pope Julius II, when during the summer of 1493 syphilis raged throughout Western Europe.

Beginning with the 15th century, attempts were made to extinguish or "kill" the mercury, that is, to finely subdivide it in preparations containing the metal. It is well acknowledged that mercury in the state of minute subdivision has distinctive physiologic effects and that the more perfectly the mercury is "killed," the more efficient is the compound.

The first mercurial pills were originated about 1540 by Barbarossa II, King of Algiers and admiral to the Turkish fleet. The formula which was sent to Francis I, King of France, contained metallic mercury, which was extinguished with the juice of roses. One of the most recent "killed" mercury preparations is gray powder or mercury with chalk, which was originated by the celebrated London syphilologist, Dr. Jonathan Hutchinson, F.R.S.

Quicksilver girdles or belts were made by the application of mercury with the white of eggs and were at one time employed in the treatment of itch.

In 1759 Prof. Braun, of St. Petersburg, was the first to solidify mercury. During that winter the thermometer registered -34° F. and when Braun placed it into a mixture of snow and nitric acid the mercury sank with great rapidity, owing to its contraction, to -352° F. When the professor took the bulb, he saw what had never been seen before, namely, solid mercury. Instead of the eternal fluid, he had before him a metallic mass, which could be hammered like lead. Since that day mercury was properly classified among the true metals.

A very important markstone in the history of mercury is the performance of Torricelli's Experiment in 1643. It remains an everlasting credit to this pupil of Galileo to determine the pressure of the atmosphere as the equivalent of 30 inches or 760 mm. of mercury. The barometer was the direct result of this experiment.

Gabriel Daniel Fahrenheit, about 1720, introduced the use of mercury in thermometers, in place of alcohol, which was employed by Galileo.

Joseph Priestley (1733-1804) was the first to use metallic mercury as a sealing agent when working with water-soluble gases.

K. W. Hempel (1819-1898), pharmacist and assistant to the great Liebig, originated the volumetric determination of mercury by titrating with Iodine Volumetric Solution.

As an example of the opposition to innovations, even in the enlightened 19th century, let me state that the first dentist who filled teeth with amalgam in New York about 1830, had to flee for his life on account of a rumor that he was poisoning his patients with mercury.

In conclusion, do not let us forget the history of mercury in our own country, which furnishes about one million pounds of mercury annually. The California mines in New Almaden, about 60 miles from San Francisco, have long been known to the Indians, who used the bright red cinnabar as a paint. The commercial value of the mines was first made known by a Mexican named Castilleró, who became the first owner, but at present the mines are in American hands. The California cinnabar yields 70 percent of mercury, while the Spanish ore yields only 30 percent.

This short account of the history of mercury does not pretend to be complete and will be followed by the History of Mercurials. The author, however, will be well repaid if it arouses more interest into that fascinating study of History of Pharmacy and Chemistry, which should be taught in every college of pharmacy, so as to inspire the younger generation with more love for their profession!

LAFITAU'S MEMOIR ON GINSENG.*

BY EDWARD KREMERS.

In 1918 it will be two hundred years that this, possibly the first printed contribution to American materia medica, was dedicated to the Duke of Orleans, Regent of France, by the Jesuit missionary who had been stationed at Sault Saint Louis, near Montreal, where he had discovered what the Indians called *garcentongen* or man-root. The discovery was not accidental but based on diligent search suggested by Father Jartoux, who had recently described the Chinese plant, the collection of which, by the Emperor's root hunters, he had witnessed in Tartary.

Lafitau's original is rare and even a reprint published in 1858 by Verreau is scarce. Hence, though the therapeutic merits of the ginseng are no longer held in the esteem shown it by the Jesuit missionary, the historic significance of the drug is such as warrants a republication of Lafitau's Memoir, together with that of the older literature of Jartoux and other missionaries and naturalists. Moreover, its historic significance in this country is not restricted to its supposed therapeutic merits, believed in by missionary as well as Indians, but is one of great economic imports to the colonies and the early United States. Suffice it to point out in this connection that the first vessel that left an American port for China after peace with the mother country had been established, was laden with a cargo of ginseng, which enabled the early citizens of the newly established United States to secure tea and silk without money, but for a root that grew wild in their forests and that was to be had in quantity for the mere collecting. Somewhat later, ginseng was one of two articles which were of sufficient value to pay wagon freight from Kentucky over the Alleghanies to the Atlantic seaports.

The republication of Lafitau's Memoir, together with other original literature on the subject, has been made possible by the Hollister Pharmaceutical Library Fund of the Wisconsin Historical Society.

THE CHICAGO VETERAN DRUGGISTS' ASSOCIATION.*

BY WILHELM BODEMANN.

Dear friends: Do not get frightened—I shall be brief! Miracles never cease! Constitutional limitations prohibit a surgeon to operate on a patient without the patient's consent, yet, on opening the A. Ph. A. JOURNAL for August, I am down for a paper on "Chicago Veteran Druggists' Association," without my consent or knowledge, or even warning. When such men as E. G. Eberle, Hugh Craig, W. B. Day, J. H. Beal, J. P. Remington, H. M. Whelpley—all valiant A. Ph. A. warriors and C. V. D. A. members—are on the field, certainly the C. V. D. A. is well represented at your historical conclave. All of these members are far superior pen slingers—certainly write more legibly and intelligently—than the writer can say for himself. But—let me say this to the A. Ph. A. Historical Section: I am disappointed, with all the appeals I have made to the A. Ph. A. Historical Section, that no city has so far followed the beacon light held out by

* Read before Section of Historical Pharmacy, A. Ph. A., Indianapolis meeting, 1917.

Chicago. The N. A. R. D. fights for the Retail Drug Trade; the A. Ph. A. fights for the allied branches and furnishes munition to all of them. We of the C. V. D. A. stand for only one thing—"Gemuethlichkeit"—"Brotherly Love," "Reminiscences" and, by our deeds and records, have shown to the world that there is something besides commerce and besides theory and practice, and that is the practice of "Love your neighbor and friend." We prohibit from discussion politics, business and religion. Aside from that we prohibit nothing, not even pure water; we don't delete other beverages, and allow everybody to do anything he wants to promote cheer and good-will.

There is not a city in the world that would not be benefited by a Veteran Association. Think for a minute what a wealth of interesting pharmaceutical lore the home cities of a Joseph Lemberger, John Patton, Joe Remington, L. E. Sayre, H. M. Whelpley, John Uri Lloyd, L. C. Hopp, McElhenie and McIntire and scores of others could draw on. Why not add the missing link—the Veteran Association—to the fame of these men? Why don't they go to it and start something? Will it pay these men? Well—let me cite my experience, if I may be permitted to do so.

My friends: I have had in my fifty years of United States pharmacy life all sorts of ups and downs, victories and defeats (and I am undecided which I enjoyed the most). I am willing to call all of that off—but leave me the C. V. D. A. To have been Recording Secretary of this most democratic as well as aristocratic body is the one thing in my career I don't care to have wiped out. We gather historical data. Our members must furnish the Archives with a photo and an autobiography—a thing which they can do far better before than after the funeral. We gather weekly at a *Tavola Rotunda*. Our Corresponding Secretary, John Blocki, decorates every member for his birthday at the weekly Roundtable. In this way we remind some men that they are born, which some claim they have forgotten. We deposit our red carnation on the bier of our departed friends—just *one*—answering the purpose better than a wash-basketful because it represents Love, Reverence, and a last "Auf Wiedersehen." Call on the officers of the C. V. D. A. for further details—if you are ready to start something in your city. Meantime, whenever you are in Chicago on a Thursday, come to our Roundtable and see. It's a case of *Veni, Vidi, Vici*. There you will see the Venerable Center of the Table, our Honorary President, dear Oliver Franklin Fuller, an inspiration and a benediction; to his left, the Chairman and the Corresponding Secretary, genial John Blocki; to his right, I confess almost in tears of joy, it has been the pride and the joy of the writer to sit for fifteen years, an inheritance I wouldn't swap for all of John D.'s best-paying oil trusts.

HISTORICAL SECTION OF THE A. PH. A.

A circular letter signed by L. E. Sayre, chairman and Hugo Kantrowitz, secretary of the Historical Section of the American Pharmaceutical Association, has been addressed to members of the Association, stating that the committee is very anxious to have this section well supported and requesting articles relating to historical pharmacy. The committee has thus far been greatly encouraged by some volunteers in helping along in this work and desires further contributions. These should be sent to Secretary Hugo Kantrowitz, 104 John St., New York City.

HOUSE OF DELEGATES, AMERICAN PHARMACEUTICAL ASSOCIATION

MINUTES OF THE FIRST SESSION.

The first session of the House of Delegates was called to order at 4.00 P.M., August 29, 1917, in Claypool Hotel, Indianapolis, Ind., by Chairman J. H. Beal, who requested the Secretary to call the roll of Delegates.

Secretary Hostmann announced that credentials had been received from twenty-five state associations and the District of Columbia as well as from forty-seven other non-voting delegate bodies. In attendance were delegates from twenty state associations and the District of Columbia as well as delegates from twenty-three non-voting members.

Chairman Beal then appointed the following committees:

Committee on Resolutions: W. C. Anderson, New York; Frank Schachleiter, Arkansas; W. G. Gregory, New York; C. M. Snow, Illinois; and H. C. Fuller, District of Columbia.

Committee on Nominations: Otto F. Claus, Missouri; John G. Godding, Massachusetts; J. A. Pool, South Dakota; Charles H. LaWall, Pennsylvania; and C. A. Dye, Ohio.

Vice-President S. C. Henry assumed the chair and Chairman J. H. Beal read his address:

ADDRESS OF THE CHAIRMAN OF THE HOUSE OF DELEGATES.

Members of the House of Delegates:

My election as Chairman of the House of Delegates last year placed me in the rather embarrassing position of being the presiding officer of a body of which I was not legally a member, and therefore ineligible to the office, and to which I am still ineligible under the new by-law approved at the last General Session of the Association at Atlantic City, restricting representation in the House to delegates of State pharmaceutical associations.

Unfortunately I was not apprised of my election to this very honorable position until the House of Delegates had adjourned beyond recall, and as there was no *ad interim* body or committee to which I could hand my resignation it has seemed to me best to hold the position in trust until your re-assembly should make possible the selection of a legal presiding officer, to whom I shall gladly turn over the honors, labors and accompanying emoluments.

Before doing so, however, I shall take the liberty of referring briefly to some of the incidents of the last annual meeting of the House and of the parent association, and to some matters collaterally related thereto.

At the second session of the House of Delegates last year Dr. H. H. Rusby, as chairman of a special committee, presented the following report:

"REPORT OF COMMITTEE TO STUDY THE PROPOSED CHANGES IN CONSTITUTION OF HOUSE OF DELEGATES.

"Your committee met this morning at 8.30 and again this afternoon. We have found so many important considerations involved in the pending resolutions that we are not willing to offer any general recommendations on the subject.

"At the same time, we have agreed upon the desirability of certain measures, which we shall recommend.

"We heartily endorse the chairman's opinion that the State associations, as such, should have a representation in this Association. Such associations do at present have the right to send delegates to this Association, who have the privileges of the floor, but the delegations, as representing their associations, do not have a vote in determining the proceedings. It seems to us very logical and consistent that the State associations, as units, should possess membership in this Association, and should so participate in the proceedings, either through the general sessions, or through those of the House of Delegates.

"We see important reasons why this should be done and we see very important benefits of such a plan, both to the State associations and to this body. We believe that there are many thousands of members of the State associations who are not members of this Association, and who for that reason take no interest in our affairs. To make their associations members of this body, with voting powers, would be the first step toward interesting them individually. It seems perfectly feasible to supply to members of State associations which are thus members of this body the publications of the A. Ph. A., for, say, \$3.00 in addition to the \$2.00 paid to their own association. We believe that the receipt of these publications would become the strongest possible incentive leading to their becoming full members. We believe, moreover, that this would go a long way toward bringing about uniformity in regard to legislation, especially affecting the prerequisite law and license laws.

"We therefore recommend that the necessary legislation should be enacted to make State pharmaceutical associations members of the House of Delegates, giving to each association represented at our meetings a single vote.

"We believe and recommend that the same action should be taken with regard to the associations of the District of Columbia and other territories, and to those of foreign States of the American continent.

"We believe that this House of Delegates should meet for the discussion of such business as may be referred to it by the A. Ph. A. and of such other affairs as they desire to discuss, previous to the meetings of this Association, and at the same time and place as the meetings of the A. C. P. F. and the N. A. B. P. in order that its discussions may be deliberate and thorough.

"We are inclined to think, though we make no specific recommendation at this time, that the following things should be done:

"1. That the local branches should not have voting powers in this House of Delegates and at the same time a representation on the Council. We direct particular attention to the fact that every member of a local branch is a member of this Association, so that these branches are not in the same need of representation as are the State associations.

"2. That local associations should not possess voting powers here. It is due the State associations that they should possess a full representation of all local associations and that it is through those State associations that they should have representation here, and not independently.

"3. That the same view should be taken of pharmacy schools, all of which, moreover, possess representation in the Section on Education and Legislation.

"4. That such national associations as the N. A. R. D., N. W. D. A., A. D. M. A., should not have voting powers, although it would be well for them to have representation in this Association. Their position is quite different from that of the other bodies already mentioned. First, they are bodies coordinate with ourselves. We are all members of the Drug Conference, where we have an equal footing. This Association has no voting powers with those bodies, and there is no good reason why they should do so in a house of delegates such as ours.

H. H. RUSBY, *Chairman*,
N. P. HANSEN,
(Signed) L. A. SELTZER,
JEANNOT HOSTMANN,
H. P. HYNSON."

The above report was adopted by unanimous vote.

At the final session of the House of Delegates Secretary Hostmann moved that the Association be recommended to adopt a new by-law as follows: "There shall be and hereby is created a House of Delegates to have and to exercise such functions as may be hereafter specified by the Association," which was carried. (JOURNAL, April 1917, pp. 362-367.)

As required by the by-laws this proposed amendment was presented and read at the second General Session of the Association, Sept. 6th, and on motion was ordered to take the usual course. (JOURNAL, Oct. 1916, pp. 1041-1042.)

The proposed amendment was also, in due course, brought before the Council and approved by that body at its adjourned session Sept. 8. (JOURNAL, Nov. 1916, p. 1283.)

The minutes of this adjourned session of the Council were read before the final General Session of the Association on Sept. 8th, and on motion, duly seconded, were by formal vote approved, so that the amendment is now constitutionally a part of the by-laws of the American Pharmaceuti-

cal Association, though it has not, so far as I have been able to discover, been included in the list of by-laws printed in the Year Book.

At the Atlantic City meeting a new by-law fixing representation in the House of Delegates was also adopted. (JOURNAL, April 1917, pp. 368-369; JOURNAL, Nov. 1916, p. 1283.)

This by-law reads: "Representation. The membership of the House of Delegates shall consist of three regularly appointed delegates from each State pharmaceutical association, from the District of Columbia Association and from similar associations in Porto Rico and the Philippines and any foreign American State.

"Delegates from all other bodies and organizations shall have the privileges of the floor but shall not have the right to vote."

As the Association has not as yet designated any new functions of the House of Delegates, it will be logical to assume that the latter still possesses all of the duties and functions that it possessed at the time the new by-law was adopted, and which will be brought to your attention presently.

The entire code of by-laws of the House of Delegates as printed in Vol. 4 of the Year Book, and which must govern our procedure until amended, is as follows:

"BY-LAWS OF THE HOUSE OF DELEGATES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

(REVISED TO SEPTEMBER 8, 1916, INCLUSIVE.)

CHAPTER I.

"Article I. Functions. The House of Delegates shall have and exercise the following functions:

"A. To receive and consider the reports of delegates from the bodies which they represent in the House of Delegates.

"B. Consider and report upon such resolutions and upon such other subjects as may be referred to the House of Delegates by the Council or by the Association in general session, or by the various Sections.

"C. Make a final report of the business transacted by the House of Delegates to the final session of the outgoing Council at each meeting.

"D. It shall have the authority to adopt all rules and regulations necessary for the proper conduct of its business and not inconsistent with the Constitution and By-Laws of the Association and the Council.

CHAPTER II.

"Article I. Representation. The membership of the House of Delegates shall consist of three regularly appointed delegates from each State pharmaceutical association, from the District of Columbia Association, and from similar associations in Porto Rico, the Philippines and any other foreign American State.

"Delegates from all other bodies or organizations shall have the privileges of the floor but shall not have the right to vote.

"Article II. Term of Service. The elected or appointed delegates shall hold office for one year, or until the credentials of their successors shall have been approved by the Council.

CHAPTER III.

"Article I. Organization. The first session of the House of Delegates at each annual meeting shall be called to order by the Chairman, or one of the Vice-Chairmen, or the Secretary of the preceding House; or, in the absence of all of these, by the Secretary of the Council.

"Article II. Voting. Each delegate shall be entitled to one vote. No delegate shall act as proxy of another delegate who has not been seated, nor as delegate for more than one association, organization, or institution.

"Article III. Privileges. Any member of the American Pharmaceutical Association may attend any session of the House of Delegates and shall have the privilege of the floor.

CHAPTER IV.

"Article I. Officers. The officers of the House of Delegates shall consist of a Chairman, two Vice-Chairmen and a Secretary, who shall be elected annually by ballot by the House of Delegates.

"Article II. Duties of Chairman and Vice-Chairmen. The Chairman shall preside at all meetings of the House of Delegates; in his absence, or on account of inability from any cause, the First Vice-Chairman; or, in his absence, the Second Vice-Chairman; or in the absence of the three, a Chairman *pro tempore* shall perform the duties of the Chairman.

"Article III. Duties of Secretary. The Secretary shall keep fair and correct minutes of all the proceedings of the meetings and carefully preserve all reports and papers of every description received by the House of Delegates, and deliver the same to the Secretary of the Council at the annual meeting. The Secretary shall read all papers received for the purpose; shall call and record the ayes and nays whenever they are required to be called; shall notify the Chairman of every special committee of his appointment, giving a list of his colleagues, and stating the business on which the committee is to act, and shall give notice of the time and place of each meeting of the House of Delegates.

CHAPTER V.

"Article I. Sessions. The House of Delegates shall hold at least one session during the annual meeting of the Association at an hour previously determined by the Council and such additional sessions as may be necessary for the transaction of its business.

CHAPTER VI.

"Article I. The Committee on Resolutions. The Chairman shall appoint a Committee on Resolutions consisting of five members, to which shall be referred all resolutions, and which shall report to the House the results of its deliberation not later than the last session of the House.

"Article II. Special Committee. The Chairman shall appoint such special Committees as may be directed by the House.

CHAPTER VII.

"Article I. Resolutions. All resolutions shall receive a majority of affirmative votes of those present for adoption.

"Article II. Amendments. Every proposition to amend these by-laws shall be submitted in writing at one session of the House and may be balloted upon at the next session, when upon receiving the affirmative vote of three-fourths of the members present it shall become a part of the by-laws.

CHAPTER VIII.

ORDER OF BUSINESS.

"The following shall be the Order of Business:

"1. Calling Roll of Delegates whose credentials have been approved by the Council.

"2. Appointment of Committee on Resolutions.

"3. Reading of communications from the Association, Sections and Council.

"4. Calling Roll of Delegations for reports, resolutions and communications, all of which shall be in writing.

"5. Miscellaneous business.

"6. Election and Installation of Officers.

"7. Adjournment to a certain time."

It will be perceived that the House of Delegates has hitherto been required to report all of its actions and resolutions to the Council which body can not take final action thereon, but must in turn report them for approval to the Association. The House has therefore been in the form of an appendage to an appendix, which double-jointed arrangement has not been the least of grievances of which delegates have complained. Since the House is now no longer an appendage of the Council, it should be in order to change our by-laws and order of procedure that in the future our reports shall be to the parent body direct, and I shall presently offer some specific recommendations to such effect.

It will be observed from Article I, Chapter II, above quoted, that members of the House of Delegates are not required to be members of the American Pharmaceutical Association. After lengthy consideration, I have come to the conclusion that this is altogether proper. We can not hope to serve American pharmacy as it should be served if we insist that only members of the American Pharmaceutical Association can be delegates to the House of Delegates. Those who once become delegates are very likely to seek permanent affiliation by becoming members of the parent body. The chance of non-members ever being sufficiently numerous in the House to out-

number the members of the Association is so remote as hardly to be worth consideration, and besides the House must, like the Council, bow to the will of the Association, should there ever be a conflict of opinion or authority.

Moreover we have excellent examples for such lack of coincidence of membership in two bodies working together. The qualification of electors for officers of the United States is left to the determination of the individual States, and it is well known that under this rule in some States aliens can thus vote for officers of a country of which they are not citizens. We also permit non-member delegates of this Association to take part in the organization of State nominating committees, and under our old plan of election also permitted them to participate in the election of officers.

And, finally, the House of Delegates acting as such can not elect any officers or committees except its own, nor affect any other action of the Association except through argument and persuasion.

Referring once more to the functions which the House of Delegates should exercise, I have the following to suggest:

Two heavily worked bodies which already have more labor than they can properly perform are the General Sessions and the Council. In both of these the pressure of late years has increased almost to the bursting point. The Council indeed, through midnight and special sessions, manages to discharge the major portion of the work entrusted to it, but it is more than suspected that the General Sessions sometimes pay scant attention to, or even entirely neglect matters of great importance to the interests of the Association.

As a beginning, therefore, I recommend that we recommend the Association to transfer the following duties from the General Sessions and Council to the House of Delegates, beginning with this or with the next annual meeting, changes in the by-laws for this purpose to be made when necessary:

1. Transfer the reception of fraternal delegates from other pharmaceutical or allied organizations, or from departments of the United States Government, from the General Sessions to the sessions of the House of Delegates, thus leaving the first General Session of the meeting solely to the welcoming speeches by our hosts, the President's address, such special addresses as may be arranged for, to announcements which should be made at this time, and to the highly important duty of selecting and organizing the annual Nominating Committee.

2. Abolish the Committee on Resolutions provided for in Articles I and IX, Chapter X, of the Association By-Laws, which so far as I recall has never made a report, and transfer its functions to the House of Delegates.

3. Instruct the Committee on U. S. P. and N. F. to report in the first place to the House of Delegates, except upon financial matters. The national standards affect every portion of the whole country, and a body of representatives of State associations should have the opportunity of passing judgment upon them. If there are matters of special scientific interest in the reports the House will naturally refer such portions to the Section on Practical Pharmacy and Dispensing or to the Scientific Section for their consideration.

4. Make it the duty of the Committee on Patents and Trade-Marks to report to the House of Delegates instead of to the General Sessions. The questions dealt with in these reports are largely trade questions, or questions of law as related to trade, and a nationally representative body is the proper place for their presentation and discussion.

5. Transfer the reports of the Commission on Proprietary Medicines, except such portions as relate to financial questions and election of members, from the Council to the House of Delegates.

No doubt other functions appropriate to the House of Delegates will present themselves or be presented from time to time, the above being intended merely as a suggestive outline of work which might be immediately turned over to the House.

RECOMMENDATIONS FOR CHANGES IN THE BY-LAWS OF THE HOUSE OF DELEGATES.

Chapter I, Article II, add to Clause A, "and to receive the greetings of fraternal delegates to the Association from other organizations or from departments of the United States Government."

Clause B to remain unchanged.

Clause C, change the second line to read, "to the Association not later than the last General Session at each annual meeting."

Clause D to remain unchanged.

Chapter III, Article I. In the last line change "Secretary of the Council" to the "General Secretary of the Association."

Chapter IV, Article I. Change "Secretary" to "Recording Secretary."

Article III. Change the word "Secretary" to "Recording Secretary," and the words "Secretary of the Council" to the "General Secretary of the Association."

Add a new article to Chapter IV to read:

"Article IV. The General Secretary of the Association shall in January of each year send appropriate blank credentials for delegates to the various bodies entitled to representation in the House of Delegates, notify the said associations of the time when the credentials, properly filled out, shall be returned, and on or preceding the first day of the annual convention shall deliver such credentials to the Recording Secretary. All credentials received after the opening of the convention shall be handed directly to the Recording Secretary."

"The General Secretary shall cause all of the proceedings of the House of Delegates annually to be printed in the JOURNAL of the Association, and shall procure a sufficient number of reprints of the same for distribution among the members of the House of Delegates and the officers of the Association. Said reprints shall also contain the by-laws and a list of the members, officers and committees of the House of Delegates."

Chapter V, Article I, change "Council" in the third line to the "Executive Committee."

Chapter VI. Add a new article to read: "Article II. The Chairman, Vice-Chairman and Recording Secretary shall constitute an Executive Committee to pass upon the credentials of representatives to the House of Delegates, to arrange the program for the annual meeting, and to perform such other duties as are commonly discharged by executive committees, or which may be referred to them by the Association or by the House of Delegates."

This executive committee will constitute an *ad interim* body which can represent the House of Delegates whenever the President, acting as such, could not represent it. It will be the committee on credentials which can act incidentally on credentials when presented, a report of which will be ready when the first meeting of the House is called to order; so that there need be no such delay as we have had in the past.

Change the number of the present Article II to III.

Chapter VIII, line three, change the word "Council" to "Executive Committee."

Possibilities of the House of Delegates.—In reviewing the proceedings of former sessions of this body, I have been much impressed by the fact that hitherto the House has spent far more time in complaining about its alleged lack of powers or in discussing the powers it ought to have than in exercising the powers it already possessed.

As the House is now a by-law body, as is the Council, it can no longer be said to be subservient to the latter, but both are co-equal parts of the Association which has created them.

The House now has the possibilities and powers that any other organization of voluntary membership has, namely, the opportunity of discussing and formulating resolutions and policies of interest to the drug trade, and of trying subsequently through argument and persuasion to have them put into practical application.

To the eloquent words of my distinguished predecessor in this office, Dr. H. P. Hynson, concerning the necessity of a national body to represent specifically the State pharmaceutical associations I feel that I can add nothing. For years it has been the thought of many of us that there should be some organization to represent the State associations in a collective capacity, either such an organization as this present House of Delegates, or an entirely separate organization of the representatives of the State associations. Dr. Hynson has been especially persistent in his advocacy of this idea, and as far back as 1896 in an address to the Maryland Association urged that the American Pharmaceutical Association should furnish the rooftree under which such an organization could be assembled, and has since repeatedly advocated the idea both before the American Pharmaceutical Association and elsewhere. (See JOURNAL, Sept. 1916, pp. 951-954, April 1917, p. 365.)

Some have hastily assumed that the creation of the National Drug Trade Conference was the realization of Dr. Hynson's idea, but this is incorrect. The National Drug Trade Conference is composed of representatives of national organizations only, and State associations are not eligible to membership therein.

The resolution calling the constituent bodies of the National Drug Trade Conference together for the first time, was due to the immediate necessity of making some provision for the adequate representation of the drug trade for the consideration of anti-narcotic legislation then pending at Washington. This was the sole object I had in mind when I formulated that resolution, and I had no thought that such a conference would be looked upon as in any manner superseding or as rendering unnecessary an organization of State associations such as Dr. Hynson has so long and so ably contended for.

The organization of a national body representing the State pharmaceutical associations as such has now been consummated by the creation of this House of Delegates under its present by-laws: the responsibility for making it serve the high purposes for which it was brought into existence rests with you.

VICE-CHAIRMAN HENRY: Gentlemen, you have heard the very able, thorough and exhaustive address of your Chairman. Unless there is some objection, the Chair will rule that the address with its recommendations will be referred to a committee of three. Is there any objection? If not, the Chair will appoint as such a committee, Charles H. LaWall, S. L. Hilton and O. F. Claus.

There is just one other matter that I should think should be cleared up in regard to this address. That is the recommendations for changes in the by-laws, and unless there is objection I will rule that the reading of these recommendations by the Chairman shall also constitute the first reading of the proposed changes. Therefore, the matter will be open for final action at the session tomorrow. If there is no objection that ruling will stand.

(Chairman J. H. Beal resumed the chair.)

THE CHAIRMAN: Now, as I confessed at the beginning of my paper, I am not legally your presiding officer, so it will be in order for you to provide for a chairman *pro tem* who can legally preside.

C. H. LAWALL: I will nominate as chairman *pro tem* James H. Beal.

THE CHAIRMAN: I am not a delegate.

VICE-CHAIRMAN HENRY: Mr. Chairman, as I understand it, this matter—the point that you have raised—will be finally determined when this body reorganizes; in other words, when your successor is elected, and it seems to me it is perfectly proper for the Chairman to continue to serve until that point in the program is reached. I raise the point of order.

THE CHAIRMAN: The Vice-President raises the point of order that the old House of Delegates remain as such until it has been replaced by the organization of the new House of Delegates. Under the circumstances I do not like to decide that, so I will put it to a vote. As many as favor sustaining the point of order made by the Vice-President will vote aye, opposed no.

(The question was put and carried.)

THE CHAIRMAN: The next order of business is the report of the Secretary. It follows:

REPORT OF THE SECRETARY OF THE HOUSE OF DELEGATES.

Once again your Secretary must hark back to the same old question "Why a House of Delegates?" Has the change wrought at Atlantic City limiting representation in the House to State and territorial pharmaceutical associations brought forward any advancement? Has the usefulness of the House been increased or decreased?

I feel safe in stating that no one who has studied the question will deny that the idea of having a permanent active central body representing all the State and territorial associations in the country is one full of potential possibilities.

We have our A. Ph. A. and the N. A. R. D., both doing excellent work either individually or through representation in the Drug Trade Conference. I think you will agree that the sum total of pharmacists attending the annual sessions of the State units is much larger than is that ever in attendance at the meetings of the two national bodies mentioned above. But, you will say, the members who can not or do not attend receive all transactions and "goings on" of the meetings in the publications of their respective associations. True, indeed, but many of us, yes,

by far too many, know that a very large number of pharmacists will not read these reports of the meetings although they are of vital interest to their welfare.

Therefore, if it were possible, and I can see no reason why it should not be, to get together at least once a year representatives of all State and territorial pharmaceutical associations and have these delegates report back to their associations the matters that were discussed in annual session, a great step forward would have been taken.

Of course, there are lots of things that must be done before such a conclave might bring forth any direct and tangible results, but personally I feel that in view of the great possibilities the idea suggests that enough workers can be found in our ranks who will take up with the proper spirit and enthusiasm the preliminary work needed to bring about the desired result.

Some will say the idea is good, but the execution is bad. Such a federation to be of any value should be an entirely separate and distinct body without any affiliation whatever with the A. Ph. A. Perhaps this is true. If it is, the work that the House as at present constituted may and can do and ought to do, should show this and if whatever we may accomplish in the House within the next two or three years should blaze the way for the organization of a successful live central federation of State associations, then I claim that that would be but another valuable achievement added to the many the A. Ph. A. now has to its credit.

Representation in the House being limited to associations having many members not members of the A. Ph. A. brings about a more or less chaotic condition which may be remedied temporarily by asking these bodies to send only such delegates as are members of the A. Ph. A.

Of course, there is another way that this can be remedied—make them all join the A. Ph. A.! This brings up the point that as a delegate body the House has only a fly-by-night existence and as the organizations sending delegates are not members, the only way to obtain permanent existence is to make the State associations members of the A. Ph. A. Can this be done? If so, HOW? This is a big question which means a great deal to the A. Ph. A. and should again be taken up.

If we can but interest the delegates and have them create discussion at the State meetings of the happenings at the A. Ph. A. meetings then we, by creating a closer bond between the A. Ph. A. and the other associations are performing an act which perforce must rebound to the benefit of organized pharmacy and everything connected with it.

It is by no means an easy matter to arrange a program for a meeting such as we are attending at this time. Many of the delegates are appointed only a short time before the scheduled time of meeting. It is difficult to know what delegates will be in attendance. If this body were properly organized and the delegations in attendance had been instructed by the bodies they are accredited to, as to introduction of resolutions, etc., after these matters had been duly discussed by their respective associations then something could and would be accomplished.

If the officers of the House acted as a sort of a committee on scope or program and after drawing up a tentative list of important subjects considered worthy of discussion submitted this list to the officers and chairmen of the proper committees of all the State associations many of these bodies would take action and send instructed delegations ready to do real hard work of lasting benefit.

Functions of the House:—Your Chairman in his address has made several recommendations that I am sure you will carefully consider. I would like to ask the members to listen to one more suggestion. Could not the multiplication of Section meetings be somewhat reduced by abolishing the "Section on Education and Legislation?" Many of the matters discussed by this section should be taken care of by the A. C. P. F. and the N. A. B. P., the balance by a properly organized and well-running House of Delegates.

(Signed)

JEANNOT HOSTMANN

THE CHAIRMAN: You have heard the report of the Secretary, what is your pleasure?

W. C. ANDERSON: Does the report carry with it any recommendations?

SECRETARY HOSTMANN: Only a suggestion.

(Upon motion the report was accepted.)

THE CHAIRMAN: Are any committees ready to report or resolutions to be presented?

Secretary Hostmann read resolutions.

(See report of Committee on Resolutions.)

COMMUNICATION OF SPECIAL COMMITTEE OF NATIONAL DRUG TRADE CONFERENCE.

To the President and Members of the American Pharmaceutical Association:

Gentlemen:—

The National Drug Trade Conference has been in existence since 1912, when pursuant to a resolution passed by the A. Ph. A. at its annual meeting it came into being at the New Willard Hotel at Washington, where it has been holding its annual and special meetings ever since. Its purpose at its birth was to be a clearinghouse of opinion and suggestion of all the several National Associations connected with the drug trade, to wit:

American Pharmaceutical Association, American Drug Manufacturers Association, Association of Pharmaceutical Chemists, National Association of Retail Druggists, National Wholesale Druggists Association, Proprietary Association of America.

Up to this time its work has been practically centered upon and limited to the Harrison Anti-Narcotic Law, the passage of which by the Congress of the U. S. A. was its work. If it never did another stroke of work its creation and perpetuation to this time would be much more than justified by that splendid piece of constructive work. It will be many a day before another piece of legislative work as valuable and successful will be done by the National Drug Trade Conference or any other drug association. The saving of human life and above all of human usefulness and efficiency by this law can not in my humble judgment be estimated. Suffice it to say that every day, from the day of its passage on, it has saved and conserved lives of human beings in this country and the number thus saved is increasing daily. Most of us know the untold and unreckonable misery whisky has done to the human race, although probably none of us know the real sum of wrecked lives and unmarked graves that can be accredited to John Barleycorn. Few if any of us, however, have the remotest conception of the extent of the wrecked homes, shattered systems and rotted moral fiber that owe their existence to the abuse of narcotic drugs. It transcends compilation because it is so insidious and hidden that most of it does not see the light of day. In any gathering of men and women anywhere there are an appreciable percentage of narcotic addicts. Brothers do not know that their own sisters are such and parents caress many a child that within the space of an hour thereafter is jabbing the hypodermic, or "shotgun" of the initiated, into his or her body somewhere. No class is exempt, no calling too exalted. It permeates every realm of society and all professions and trades. Wherever it strikes, the moral fiber begins to rot and self-respect prepares to fly out of the window. So much to the credit of the National Drug Trade Conference, and please chalk up that credit in bold letters.

It is known to all the delegates that constitute this Conference that it possesses no real power to do anything. New and splendid things that are to be done by it, knock at the door and after being debated and discussed are of necessity shelved, because each set of delegates can by the by-laws of the Conference only refer any conclusions reached back to their National Association for action. Hence practically all of the time since the passage of the Harrison law has been of the nature of mutual felicitation, friendly debate and practice in parliamentary rule.

Legislation is going on in increased degree and severity every year. Reform legislation, much of it extreme and impractical and almost all of it more or less crack-brained, seems to be the order of the day in halls of legislation. Formula exposure laws, laws requiring registration and payment of charges for each such registration of every medicinal product sold in a State, etc., etc., crop up regularly at State legislatures in forty-eight States. Each branch of the trade and each association, both State and national, endeavors to handle the situation by its own methods and with its own arguments. Some of the latter flatly contradict each other. Few of them carry enough weight to influence legislation and impress legislators. It seems to the National Drug Trade Conference that organized effort is needed to successfully cope with the future problem of preventing bad and creating good legislation bearing upon and affecting the Drug Trade. Can not such organization be effected by having each national association concerned with the drug trade and represented by the six national associations constituting the N. D. T. C., authorize its delegation to that conference to act for it at meetings of the N. D. T. C.? Your legislative committee has power to act in legislative matters and does act, and is thus enabled to accomplish something. Could you not appoint three members of your legislative committee to act as your

delegates to the N. D. T. C., and give them the power to act at its meetings, without having to wait a year perhaps for your annual meeting, and probably thereby lose the opportunity to prevent the passage of some bad law at a legislative session of some State? In cases of new legislation inaugurated by the N. D. T. C., as for instance the Harrison law, we can wait for a year or so for your confirmation, but in cases of laws proposed by legislatures you have no such time to wait and you must act while the legislature is in session or it is too late. It required over two years for the N. D. T. C. to secure the passage of the Harrison law, because the N. D. T. C. had to refer its decisions and acts back to the national associations for confirmation. If the Conference had had the power to act the law would doubtless have been passed much earlier and easier.

Representing the committee appointed by the N. D. T. C. on the subject of powers of its delegates to act upon matters pertaining to drug legislation in State and nation, I am instructed to lay the question before you for your consideration and decision. In other words, permit me to present for your consideration and action the following resolutions:

WHEREAS, in matters pertaining to legislation that affects the drug trade of this country it is desirable that there be organized effort in order to successfully combat undesirable drug legislation and have enacted desirable drug legislation, and

WHEREAS, such organized effort can best be secured through the National Drug Trade Conference representing all branches of the drug trade, and by authorizing our delegates to that Conference to act according to their best judgment when the question of definite action comes up for vote at the meetings of the National Drug Trade Conference,

Now therefore be it

Resolved, that the American Pharmaceutical Association hereby empowers its delegates to the N. D. T. C. to vote upon any and all matters pertaining to drug legislation in State and nation when these come up for decision and action at the meetings of the N. D. T. C.; that such vote be in conformity with the will of this Association when such will has been expressed and in all cases, where action must be taken before this Association can consider the matter, the vote be in conformity with the best judgment of the delegates.

Resolved, that the Legislative Committee of this Association, with the approval of the President, be hereby instructed to elect from among its members or from among the members of this Association the delegates of this Association to the National Drug Trade Conference.

It seems, in conclusion, to me that of all activities of this Association in which there is needed organized effort and cooperation, those activities that pertain to legislation in State and nation affecting us as they do most vitally, require it the most and receive it the least.

If for instance the State of Indiana, which I understand is about to go bone dry, should find it necessary in the opinion of the advocates of prohibition to pass a law preventing the manufacture in or importation of ethyl alcohol in any form into the State, its drug trade would require nationwide help and prompt help to prevent its passage if they hoped to save their drug interests from being compelled to leave Indiana, and Indiana's people from securing the needed medicines that alcohol can only produce in its qualities as a solvent and preservative. The N. D. T. C. legislative committee representing as it would all the drug trade interests of the land would be enabled to take prompt action and bring to bear upon the Indiana legislative influences from every State in the United States of every drug trade interest in the United States. As it is constituted now it could do no more than to express on paper its conviction that the proposed law should be killed. It could not act in the living present and come to Indiana's aid promptly; because that conviction lacks the authority and power to express itself to anyone save the debating society in which it originated.

Very respectfully submitted,

A. R. L. DOHME, *Chairman*.

It was moved that the resolutions contained in the communication from the National Drug Trade Conference be referred to the Committee on Resolutions. Charles M. Woodruff discussed the communication and spoke of the activities of the conference from which it emanated. It was then put to vote and referred in accordance with the motion.

(The first session of the House of Delegates was then adjourned.)

MINUTES OF THE SECOND SESSION.

The second session of the House of Delegates was convened by Chairman J. H. Beal at 4.00 P.M., August 30, 1917.

The minutes of the first session were read and approved.

Vice-Chairman Otto F. Claus assumed the Chair while Chairman J. H. Beal read the report of the Commission on Proprietary Medicines. (See JOURNAL, January 1918, p. 67.)

On motion of W. C. Anderson and a second, the report was received and approved.—Carried.

Chairman Beal stated that the members of the Commission sought advice and suggestions and invited discussion.

(E. G. Eberle brought word that the General Session was considering the report of the Committee on Time and Place and asked for a vote from members in attendance of the House of Delegates. The vote was unanimous for Chicago.)

The Committee on Address of Chairman J. H. Beal reported as follows:

REPORT OF COMMITTEE ON CHAIRMAN'S ADDRESS.

Your committee appointed to consider the address of Chairman Beal have accepted the responsibility and have carefully considered the comprehensive review of the work of this body together with the valuable and timely suggestions for enlarging the scope of its work and making it a valuable constructive factor in the American Pharmaceutical Association.

These facts and recommendations have been so logically and convincingly set forth that your committee's labors have been thereby lightened and the way of decision made easy.

There are five main or principal recommendations in addition to the suggestions for changes in the by-laws which have already been partly acted upon. These we report upon as follows:

No. 1.—The transferring of the reception of fraternal delegates from other bodies from the General Sessions to the House of Delegates.—APPROVED.

No. 2.—The abolishment of the Committee on Resolutions of the A. Ph. A. and the transference of its functions to the House of Delegates.—APPROVED.

No. 3.—The provision for the presentation of reports of the Committees on U. S. P. and N. F. to the House of Delegates except as to financial matters and appointments and the subsequent reference of matters of special interest in these reports to the sections where they properly belong.—APPROVED.

No. 4.—The provision for the presentation of the Report of the Committee on Patents and Trade Marks to the House of Delegates as being a properly representative body especially favorable for this purpose.—APPROVED.

No. 5.—The provision for the transference of the report of the Committee on Proprietary Medicines, except as to financial matters, and election of members, from the Council to the House of Delegates.—APPROVED.

We also approve of all of the recommendations for changes in the by-laws made necessary in order to harmonize them with these new and increased activities of the House of Delegates and urge the final adoption of these changes at the session at which this report is read.

In concurring with all of these recommendations your committee believes that the benefit to be derived by simultaneously lightening the burden of details now considered by the A. Ph. A. and increasing the responsibilities and activities of the House of Delegates, will be made manifest at next year's meeting of the Association and that such changes are in the line harmonizing fully with the aims of President Wulling to build up a strong federation of all allied interests in the body pharmaceutic.

Respectfully submitted

CHARLES H. LAWALL, *Chairman*,
S. L. HILTON,
OTTO F. CLAUS.

(The report was accepted and approved after voting on motion of Harry B. Mason and a second.)

Chairman W. C. Anderson of the Committee on Resolutions reported for that committee as follows:

Approval of the following resolutions:

WHEREAS, the public welfare at all times, especially during the war, demands that the services of both the medical and pharmaceutical professions and of all the branches of the drug trade be fully utilized, and

WHEREAS, a medical sector has been created in the advisory commission of the Council of National Defense and no representation has been provided for pharmacy and no adequate representation for the drug trade, therefore be it

Resolved, that it is the sense of the American Pharmaceutical Association in annual convention assembled, that proper representation in the war administration for pharmacy and the drug trade be provided, and be it furthermore

Resolved, that a copy of these resolutions be forwarded to the Secretary of War and the Secretary of the Navy.

(The House on vote concurred.)

Relative to the next resolution, the Committee reported to have the work assigned to the Executive Committee, to be provided instead of the creation of a special committee. The House voted to adopt the recommendation of the Committee on Resolutions. It follows:

That a committee consisting of three members of this House of Delegates and the Chairman-elect and Secretary-elect be appointed by the Chairman. It shall be the duty of this committee to submit to the proper officers of all State and territorial associations a tentative list of subjects of national importance with an abstract of such discussion on action as may have been taken thereon with the request that such resolved matters be duly considered and such action as the Association may desire brought before the American Pharmaceutical Association through its representatives in the House of Delegates.

The first of the resolutions following was favorably presented by the Committee and approved by the House. The second resolution was disapproved concurring with the recommendations of the Committee. The resolution relative to patents and trademarks was discussed at length; the Committee presented a majority, and minority report thereon, the majority favored the adoption of the resolution, but the House decided adversely. The three resolutions follow:

Resolved, that the American Pharmaceutical Association hereby empowers its delegates to the N. D. T. C. to vote upon any and all matters pertaining to drug legislation in State and nation when these come up for decision and action at the meetings of the N. D. T. C.; that such vote be in conformity with the will of this Association when such will has been expressed and in all cases, where action must be taken before this Association can consider the matter, the vote be in conformity with the best judgment of the delegates.

Resolved, that the Legislative Committee of this Association, with the approval of the President, be hereby instructed to elect from among its members or from among the members of this Association the delegates of this Association to the National Drug Trade Conference.

Resolved, that the American Pharmaceutical Association appeal to Congress asking that all patents and trade mark registrations pertaining to inventions and products of nations now at war with the United States be abrogated or suspended by congressional enactment until such war is ended.

(The discussion concerned with the latter resolution does not differ materially from that brought up when the report of the Committee on Patents and Trade Marks was presented. As this will be printed in a succeeding issue of the JOURNAL, it is omitted in this connection.—Editor.)

Secretary Hostmann moved that the Committee be discharged with the thanks of the House.—Carried.

The Committee on Nominations reported as follows:

To the Chairman and Members of the House of Delegates:

Your committee on nominations submits the following names as officers for the ensuing year and asks your approval: *Chairman*, Samuel C. Henry, Chicago; *First Vice-Chairman*, Otto F. Claus, St. Louis; *Second Vice-Chairman*, Samuel L. Hilton, Washington, D. C.; *Recording Secretary*, Jeannot Hostmann, Hoboken, N. J.

Respectfully,

C. A. DYE,
J. A. POOL,
JOHN G. GODDING,
CHARLES H. LAWALL,
OTTO F. CLAU'S.

W. C. Anderson moved that the Chairman cast one affirmative ballot for the nominees.—Carried.

CHAIRMAN J. H. BEAL: Members of the House of Delegates, you understand the unfavorable circumstances under which we have been compelled to operate this year. I fully believe from my study of the question it is possible to make this House of Delegates a very useful instrumentality for benefiting the American Pharmaceutical Association and pharmacy at large. Unless I am a false prophet, that will eventually be the result of the action of the House. It needs cogent, sympathetic effort on the part of all of us. I hope you will give the new officers that sympathetic support.

After installation of the Officers-elect the House of Delegates was adjourned.

THE NEED OF MEDICAL MEN.

The sweeping demand of Surgeon-General Gorgas for 5000 more doctors, which is only a beginning, by the way, finds the profession and the colleges hard put to it, despite their unqualified patriotism, to meet the grave situation. As a consequence, therefore, all sorts of sacrifices will have to be made to secure the proper number of medical men and to give the service that the army needs. Inevitably, this will react on the civilian life and hospital service, and the impending medical famine can only be saved by the coöperation of all to prevent the waste, as it were, of professional material, which is a much more serious thing than some other wastes which are very much before the public. While there is no use of talking over spilled milk it is very plain that Congress and the executives must now do all that legislation or executive action can to conserve the medical resources of the country and insure that regular and continuous supply of doctors for the military arm and civil life that the educators last spring believed they were about to secure.—From an editorial, Philadelphia *Public Ledger*.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CHICAGO.

The ninety-sixth monthly meeting of the Chicago Branch of the American Pharmaceutical Association was held at Kuntz-Remmlers restaurant, Friday evening, April 26, at 8.00, with a good attendance.

Dr. Oliver Smith of Parke, Davis & Co., was introduced by Vice-President Clark and presented a well illustrated lecture on the production of diphtheria antitoxin. Dr. Smith also discussed the use of vaccines and sera in the armies of the present war.

He stated that small-pox vaccine, typhoid vaccine and tetanus antitoxin were almost universally used in these armies. The custom has developed of using all three of these prophylactic agents with good results on the individual simultaneously, that is within one day. Three injections of typhoid vaccine of increasing strength at intervals of about a week, are usually made. The result of this prophylactic treatment has been that small-pox is practically unknown, typhoid is reduced to an exceedingly small percentage and tetanus is much lessened. Immense quantities of these sera and vaccines are being used. The British government has called for 1,250,000 ounces of antitetanic serum for 1918. The increase in the number of horses used for antitoxin production at Parke, Davis & Company is from about 250 to 750 and, of guinea pigs in proportion.

The prophylactic use of typhus vaccine has been demonstrated of much value according to figures given by Professor Smith, especially among doctors, nurses and other attendants in hospitals where typhus is found. It is generally conceded, however, that the disease can be controlled by proper sanitary and disinfectant procedures, especially the elimination of the body louse.

A report was made before the Branch by the committee having in charge the exhibit of U. S. P. & N. F. galenicals at the American

Medical Association convention in June. In addition to a large exhibit of galenicals, ten have been selected, including "tasteless" castor oil, several low-alcoholic elixirs and some syrups, for sampling to physicians who may be interested.

Local Secretary Gathercoal and Mr. Buss and Professor Day of the committee on arrangements discussed the preparations made and planned for the entertainment of the A. Ph. A. Convention in August. The program as outlined sounded very good to all present.

E. N. GATHERCOAL,
Local Secretary.

DETROIT.

The regular meeting of the Detroit Branch of the American Pharmaceutical Association was held at the Wayne County Medical Bldg., April 19. W. L. Scoville reported the death of one of our members, Wilbur F. Jackman, and expressed the loss felt by the branch. F. F. Ingram, Jr., gave a brief talk regarding the memorial portrait of Dr. Schlatterbeck which is being presented to the College of Pharmacy of the University of Michigan by the alumni and asked that all contributions toward the expense be made payable to Dr. A. B. Stevens, but sent to the speaker.

Chas. Barthen, foreman of the Ampoule Department of Parke, Davis & Co., gave a very interesting talk on the method of manufacturing and uses of ampoules. This form of medication was shown to possess all the advantages of hypodermics and to be much simpler for the use of the physician. E. R. Jones, Dean of the Detroit College of Pharmacy, explained the uses of "Hydrogenated Fats as future Ointment Vehicles." Samples of Ointment Zinc Oxide U. S. P., made from a combination of Crisco and wax, were shown in comparison with the product as obtained by the use of Benzoinated Lard. The difficulty of obtaining fats which have been hydrogenated

to the proper degree was discussed, since this is the trouble experienced with the products now on the market.

Hugh Craig, godfather of the Detroit Branch of the American Pharmaceutical Association, was welcomed to this city by President Kimnich on behalf of the local chapter. Mr. Craig is well known in American Pharmaceutical Association branch work having been president of the Chicago Branch for a number of years, resigning when coming to Detroit to become advertising and publicity manager for the Nyal Company. He was also secretary of the New York Branch of the American Pharmaceutical Association for half a dozen years previously.

Mr. Craig expressed his interest in the discussion of the use of hydrogenated fats as ointment vehicles. He said he had served his apprenticeship when manual labor was not a lost art among the druggists, and that he was exceedingly proud of this fact in particular. Although he had been campaigning for the Liberty Loan for the previous ten days, Mr. Craig's well-known sonorous voice was in good trim.

W. A. Hall gave a short talk of appreciation of the papers of the evening which expressed the crystallization of year's work by the authors. A motion was made that a vote of thanks be extended to the speakers. Dr. Hoffmann, member of the State Board of Pharmacy, gave a talk on "Dry Laws of Michigan." Since this is a question which is not as thoroughly understood as it should be, an animated discussion followed.

MAY STRAWN,
Secretary.

NASHVILLE

The Nashville Branch A. Ph. A. held its regular monthly meeting with the Nashville Drug Club, Thursday, March 28, President D. J. Kuhn presided.

Letters were read from Eugene Brokmeyer, giving an account of the Ashley suit, the Edmonds Bill, the Cleveland patent medicine situation and the reorganization of the War Industries Board. He called attention to the classification of rose water and glycerin as a cosmetic, under which the preparation is subject to taxation, and also advised that hydrogen peroxide was not subject to the Explosives License Act.

D. S. Sanders discussed the importance of proper book-keeping, and advised against long credits, he explained his method of handling

cash and personal accounts. D. J. Kuhn, in discussing the subject, stated that he had found no better method than the National Cash Register System. S. C. Davis was in favor of having druggists prepare their soda syrups from fresh fruits when in season and also stated that syrup of pineapple and other syrups were successfully prepared in his store. He discussed the preparation of syrup made by both methods in general use, and pointed out the advantages and disadvantages of one against the other. Mr. Coffey called attention to the increasing scarcity of castor oil, quinine, belladonna and other extensively used drugs.

The April meeting of the Nashville Branch A. Ph. A. was held in conjunction with that of the Nashville Drug Club, Thursday, April 18, when J. O. Burge presided. Harry Eskew, Tennessee Pure Food Drug Commissioner, addressed the meeting on the subject of sanitary service at the soda fountain. He stated that it was the intention of the department to prosecute all violators of the applying law. Dr. E. A. Ruddiman of Vanderbilt University brought attention to the scarcity of drug clerks and expressed his opinion that women should be encouraged to study pharmacy, and that they had proven their ability in laboratory and prescription work. D. S. Sanders spoke of the future of pharmacy and insisted that pharmacists should exact higher fees for dispensing. He compared the charges made for work at the prescription counter with that of other activities. W. R. White spoke of the work of pharmacists in the Army and Navy and said that drug journals should be sent to them, that this was easily possible, if druggists would send the publications they subscribed for to them after they have finished reading.

The Edmonds Bill was freely discussed and unanimously indorsed. The treasurer of the Nashville Branch A. Ph. A. was instructed to invest the surplus of the Branch in Thrift Stamps.

WILLIAM R. WHITE,
Secretary.

NEW YORK.

The April, 1918, meeting of the New York Branch of the American Pharmaceutical Association was called to order by Acting President Turner in the Lecture Hall of the New York College of Pharmacy Building on Monday evening, April 8, at 8.30 o'clock.

One-hundred and forty members and friends were present.

The minutes of the previous meeting were

read by the Secretary and adopted as correct. The Secretary read a letter from President McCartney in which he offered his resignation owing to the fact that he had entered the services of his country and would, therefore, be unable to be officially connected with any organization. It was moved, seconded and carried that the resignation be accepted and that the Secretary write a letter to Captain McCartney voicing the regret of the Branch at his resignation and congratulating him upon his appointment.

The Treasurer submitted his report which showed a balance of \$225.60 on hand. This report was ordered filed.

Membership Committee: The Membership Committee reported that it was about ready to get down to work and that the following applications have been received.

For Membership in the Parent Organization: Edmund D. Pintéi, 100 Sanford Ave., Jersey City, N. J.; Charles J. Chapman, 62 Maiden Lane, New York City.

For Membership in the Local Branch: Lewis E. Warren, 113 West 18th St., New York City; Winfield Scott Hubbard, 113 West 18th St., New York City, and Fred Schaefer, 190 Nassau Ave., Brooklyn, N. Y.

Committee on Legislation and Education: Mr. Lehman gave a detailed report on his trip to Washington in favor of the Edmonds Bill which report was ordered accepted.

Fraternal Relations: Chairman Lasgoff reported that he had appointed Clarence O. Bigelow, Mr. Timmermann and Mr. Walter for his committee and that the work was progressing favorably, which report was ordered filed.

Member of the Council: Professor Hostmann had no report to bring in.

New Business: Chairman Schaefer of the Special Committee on "PHARMACY HONOR MEDAL" brought in a detailed report with recommendations of the Committee. It was moved, seconded and carried that the report be accepted and that the Committee be empowered to obtain the moral support and consent of the Parent Organization to their proposition through the member of the Council and to take steps towards raising the \$1000.00 Fund.

A symposium was now presented on "What we have done towards winning the war."

The Speakers were. Dr. Lovis, K. S. Stoffer, S. E. Penick, Saunders Norvell and Professor H. V. Army. General discussion followed

which was concluded by a vote of thanks offered the speakers.

Under regular procedure the meeting was declared adjourned.

HUGO H. SCHAEFER,
Secretary.

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held, Monday evening, April the 22nd, at the Philadelphia College of Pharmacy, with the new President, W. W. McNeary in the chair.

After disposing of business matters, the reading of the minutes, committee reports, etc., the scientific program was opened by Dr. Mitchell Bernstein who read a very interesting paper on "Materia Medica and its relation to Pharmacy." Dr. Bernstein pointed out clearly the precise line of demarcation between the parts of materia medica which should be taught to pharmacists and the branches of the subject which should be left untouched. It is an extremely difficult proposition, so the doctor stated, to know just how much of the subject should be taught pharmacy students and just where to stop. A little knowledge in any subject is acknowledged a dangerous thing, particularly in this subject, and again it is impracticable and unnecessary to take up the subject from every viewpoint. It was agreed upon, however that a consideration of the therapeutic properties, origin, physical properties, doses etc., was quite essential for the student. The speaker did not think that it was necessary or wise, however, to go into minute details regarding the therapeutic value and uses of the drug, that this might have a tendency to make counter prescribers out of pharmacists.

Dr. Bernstein's paper was fully discussed by Dr. Frank White, Dr. Lowe and Messrs. Gershenfeld, Griffith, Fischelis and Cook. Professor Cook then presented a résumé of the articles on Drug Conservation, which have appeared in some of the journals. At the close of his talk, he suggested that the Branch go on record as advocating a campaign of propaganda among the physicians to urge them to prescribe less glycerin, sugar, tinctures, etc., and also to express a willingness to coöperate with the authorities in any conservation program, which they deem necessary to institute. Ambrose Hunsberger, who read the original paper here, on the question of conservation,

and who heads the special committee in charge of this matter, reiterated his former suggestions which concurred with the suggestions offered by Prof. E. F. Cook. Dr. Julius Sturmer also discussed the matter and pointed out the necessity for a conservation of clerks by working out the departmental plan in the drug store, which is perfectly practicable in the city store of fair size. In this way unqualified help could easily handle the sundries, patents, cigars, etc., and the drug work left for the qualified help. Other speakers who participated in this discussion were Messrs. Fischelis, Gershenfeld and Eberle and Dr. E. E. Stewart. Acting on the several speakers' suggestions the following resolutions and recommendations were unqualifiedly endorsed by the Branch.

RESOLVED—First: That we hereby pledge unreserved support to our Government in any proper plan which may be decided upon as necessary for the conservation of glycerin, sugar, alcohol and other drug supplies.

Second: That we do not believe any radical changes in the formulas of the United States Pharmacopoeia or National Formulary will be desirable or necessary as a feature of this conservation program, but that far more effective measures can be devised. Any extensive changes in the formulas of these books would cause complications in the drug standards,

as established by the Pure Food and Drugs Act, would take much time to prove, and would cause endless confusion and unexpected incompatibilities in prescription filling.

Third: That we recommend that effective conservation be accomplished by a Government ruling which will permit the use of only a portion of the amount of these materials required in a former year, say in 1916, and that this ruling apply equally to all users, thus enormously increasing the amount of material conserved and dividing the inconvenience among all users.

Fourth: That we further recommend the appointment of a joint committee of physicians and pharmacists from the National Association to conduct a campaign of information among physicians, urging the prescribing of smaller quantities of medicines containing these ingredients and also more frequent prescribing of such forms of medication as powders, capsules, tablets, pills and infusions and decoctions.

The meeting was well attended and four new members were elected. It is intended that a campaign for new members shall be instituted in the very near future and the cooperation of the present members is solicited.

IVOR GRIFFITH,

Secretary.

COUNCIL BUSINESS

A PH. A. COUNCIL LETTER NO. 13

PHILADELPHIA, PA., April 11, 1918.
To the Members of the Council.

Motion No. 20 (Request of Smithsonian Institution for Journals) and No. 21 (Election of Members) applications Nos. 85 to 114 inclusive have each received a majority of affirmative votes.

In Council Letter No. 11 (February 6, 1918) a tentative program for the Sixty-sixth Annual Meeting of the American Pharmaceutical Association, to be held at Chicago during the week of August 12 to 17th inclusive, was submitted by the Committee on Program and suggestions invited.

The program as finally revised is now submitted, as follows:

MONDAY.

- 9.30 A.M. National Association Boards of Pharmacy
- 2.00 P.M. National Association Boards of Pharmacy
- American Conference of Pharmaceutical Faculties.

- 8.00 P.M. National Association Boards of Pharmacy.
- American Conference of Pharmaceutical Faculties

TUESDAY

- 9.30 A.M. National Association Boards of Pharmacy
- American Conference of Pharmaceutical Faculties
- 2.00 P.M. Joint Session of National Association Boards of Pharmacy and American Conference of Pharmaceutical Faculties
- 7.00 P.M. Council Meeting
- 8.00 P.M. First General Session of Association

WEDNESDAY.

- 9.30 A.M. Scientific Section, first session
- Section on Education and Legislation, first session.
- Women's Section, first session
- 12.30 P.M. Alumni Luncheon

- 2.00 P.M. Commercial Section, first session.
Section on Practical Pharmacy and
Dispensing, first session
- 4.30 P.M. House of Delegates
- 7.00 P.M. Council Meeting
- 8.30 P.M. President's Reception.

THURSDAY.

- 9.30 A.M. Section on Education and Legisla-
tion, second session.
Commercial Section, second ses-
sion
Historical Section, first session.
- 2.00 P.M. Section on Practical Pharmacy and
Dispensing, second session.
Scientific Section, second session.
Women's Section, second session.
- 7.00 P.M. Council Meeting.
- 8.00 P.M. Second General Session of Associa-
tion.

FRIDAY.

- 9.30 A.M. Scientific Section, third session
Section on Practical Pharmacy and
Dispensing, third session.
Joint Session National Association
of Boards of Pharmacy.
American Conference of Pharma-
ceutical Faculties, and the Sec-
tion on Education and Legisla-
tion
- 2.00 P.M. House of Delegates
- 4.00 P.M. Entertainment

SATURDAY.

- 9.00 A.M. Council Meeting.
- 10.00 A.M. Final General Session of Associa-
tion

Do you approve of the above program?
This will be regarded as *Motion No. 22 (Ap-
proval of Program for 1918 Annual Meeting)*

The headquarters of the Association will be
at the Congress Hotel

J. W. ENGLAND,
Secretary.

415 N. 33RD ST.

A. PH. A. COUNCIL LETTER NO. 14

PHILADELPHIA, PA., April 15, 1918

To the Members of the Council:

Jeannot Hostmann submits the following
communication:

At the regular meeting of the New York
Branch of the A. Ph. A. held on the evening
of Monday, April 8th, the following was re-
ceived:

SPECIAL COMMITTEE ON PHARMACY HONOR
MEDAL

Your committee at a meeting held March
19th, decided to make the following recommen-
dations:

That a gold medal to be known as the Joseph
P. Remington Medal, suitably engraved, be
awarded to the man or woman who has done
most for American Pharmacy during the pre-
ceding year or whose efforts during a number
of years have culminated to a point during the
preceding year where the result of these efforts
would be considered as being the most import-
ant and advantageous for American Pharmacy.
That no bar be placed as to the candidate's
profession or kind of work accomplished

That your committee be empowered in
order to make the presentation of this award
permanent and perpetual to raise a fund of
\$1000.00 and in addition sufficient money to
pay the initial expense of the die, postage,
etc. That this money be raised by obtaining
a contribution of \$200.00 from the Branch
treasury and the rest to be made up by volun-
tary contributions from the members and firms
in New York City and vicinity. That the
\$1000.00 fund be invested in Liberty Bonds,
which bonds are to be held in trust by the
Treasurer of the American Pharmaceutical
Association.

That the medal be awarded by a standing
committee consisting of all the past presidents
of the American Pharmaceutical Association
and in case the number of living past presidents
is less than five the senior past vice-presidents
of the American Pharmaceutical Association
are to be drawn upon in sufficient number to
create a committee of five. The Secretary
of the New York Branch is to act as Secretary
for this standing committee.

That the medal be presented by the Senior
Past President of the Local Branch or in his
inability to do so, by other past presidents in
the order of their seniority.

That the New York Local Branch of the
American Pharmaceutical Association take
the matter in hand to the extent of devoting
the regular April meeting annually to the
presentation of this medal.

That the consent and moral support of the
American Pharmaceutical Association be of-
ficially obtained so as to lend a national aspect
to the presentation.

The above report was accepted and the
recommendations of the Committee were con-
curred in.

Upon motion duly seconded and carried the representative of the Branch in the Council was directed to obtain the consent and moral support of the American Pharmaceutical Association so as to lend a national aspect to the presentation.

In accordance with these directions I hereby move "That the Council grant the request of the New York Branch for the consent and moral support of the parent organization in the awarding of the proposed Joseph P. Remington Medal."

Perhaps the following letters might interest some members of the Council:

Dear Mr. Schaefer:

Yours of March 15th just missed me, as I left for Florida on the 12th and only just returned, which accounts for the delay.

I think well of your plan for a Pharmacy Honor Medal and that such a medal will stimulate effort of all kinds looking to the betterment of pharmacy. If your branch raises the money to supply the medal annually, it should undoubtedly have the privilege of awarding it at its meetings and naming the purposes and conditions. I do not see that the A. Ph. A. has any claim to recognition in the matter nor that it should necessarily be consulted. Of course the Branch should not expect to give it as coming from the parent association, in other words, it should not be the A. Ph. A. medal or the "Procter Medal" presented by the A. Ph. A. Rather it should be the "Procter Medal" or whatever name you decide to give it, presented by the New York Branch of the A. Ph. A. If you wish to have the Committee of Awards to consist of ex-presidents of the A. Ph. A. as you suggest, they would doubtless be glad to serve and aid so worthy a purpose. I feel that perhaps the consent and support of the A. Ph. A. could be secured as you suggest, but it could only be awarded as an A. Ph. A. medal under the conditions of the New York Branch supplying it and naming the conditions. You might word your medal and deed of gift as follows:

The American Pharmaceutical Association, through its New York Branch hereby presents to

Medal in token of splendid work done by him in furthering and advancing the progress of pharmacy in the United States of America

New York, March 18, 1918

This would either have to be decided by the

A. Ph. A. at its annual meeting or by its Council in the interim.

I hope you can succeed in making as great a success of this medal as you have of your branch.

Yours very sincerely,

(Signed) A. R. L. DOHME.

Prof. C. H. LaWall writes:

My dear Prof. Schaefer:

I have read with much interest your proposition to establish a Pharmacy Honor Medal and am inclined very favorably toward the idea as outlined.

Such a presentation taking place, as it probably would, during the winter months, would doubtless bring to New York many representative members of the A. Ph. A. from various parts of the country and would, in a way, establish a kind of mid-winter meeting, such as Dr. Walling has recommended in his address at the Indianapolis meeting.

I should think that the A. Ph. A. would be glad to give its authorization to such a project and I will lend my influence in that direction when the time comes to exert it.

Yours very truly,

(Signed) CHARLES H. LAWALL.

At Dr. Arny's request I am enclosing his letter in which he seconds my motion.

H. V. Arny writes:

"Approving most heartily of Professor Hostmann's motion I herewith wish to be recorded as seconding same."

Jeannot Hostmann's motion is: "That the Council grant the request of the New York Branch for the consent and moral support of the parent organization in the awarding of the proposed Joseph P. Remington Medal." The motion is seconded by H. V. Arny.

Discussion is now in order: the vote will be taken later.

Motion No. 23 (Election of Members). You are requested to vote on the following applications for membership:

No. 115. C. Allen Russell, State College, Pa., rec. by Charles H. LaWall and M. R. LaWall.

No. 116. Edward Vernon Kyser, 206 E. 2nd St., Covington, Ky., rec. by Theo. D. Wetterstrom and Louis Werner.

No. 117. Charles Braubach, c/o Merrell Chemical Co., 5th & Butler Sts., Cincinnati, Ohio, rec. by H. W. Jones and Louis Werner.

No. 118. Imaon Cooper Rawls, c/o Rawls & Carter, Inc., Main & Front Sts.,

- Hattiesburg, Miss., rec. by R. F. Grace and Adam Wirth.
- No. 119. James Norman Shirley, Hattiesburg, Miss., rec. by R. F. Grace and Christian Schertz.
- No. 120. Edward J. Hall, 138 Minerva Ave., Jackson, Miss., rec. by R. F. Grace and Adam Wirth.
- No. 121. Mitchell Bernstein, 910 Tasker St., Philadelphia, Pa., rec. by Charles H. LaWall and Ivor Griffith.
- No. 122. William Frederick Haase, Jr., 55 Hanson Place, Brooklyn, N. Y., rec. by Charles H. LaWall and M. R. LaWall.
- No. 123. John M. Williams, 115 W. 68th St., New York, N. Y., rec. by Jeannot Hostmann and Hugo H. Schaefer.
- No. 124. Walter Albert Woehner, 101 S. Third St., Missoula, Mont., rec. by Charles E. F. Mollet and Charles P. Valentine.
- No. 125. Joseph W. Ehman, 145 N. 10th St., Philadelphia, Pa., rec. by Charles H. LaWall and Ivor Griffith.
- No. 126. Donald Witherow Huber, 39 S. 10th St., Philadelphia, Pa., rec. by Charles H. LaWall and F. P. Stroup.
- No. 127. George Findley Stines, 246 Main St., Conneaut, Ohio., rec. by Charles H. LaWall and F. P. Stroup.
- No. 128. John Paul Ladriegen, 321 E. University Ave., Cincinnati, Ohio, rec. by Frank Cain and Theo. D. Westerstroem.
- No. 129. Albert Buengar, 1200 Fifteenth St., Denver, Colo., rec. by F. J. Lord and John A. Martin.
- No. 130. John A. Beard, 205 Main St., McComb, Miss., rec. by Robert F. Grace and Wm. B. Day.
- No. 131. Martial B. Castiex, 339 Bourbon St., New Orleans, La., rec. by Robert F. Grace and W. H. Cousins.
- No. 132. Guillermo Calderon, 700 E. San Antonio St., El Paso, Texas, rec. by Wm. B. Day and E. N. Gathercoal.
- No. 133. Eugene H. Daste, 2529 Bayou Road, New Orleans, La., rec. by R. F. Grace and Philip Asher.

J. W. ENGLAND,
Secretary.

415 N. 33RD ST

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON NATIONAL LEGISLATION FOR 1916-17.*

TO THE PRESIDENT, OFFICERS AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION—

Your Committee on National Legislation beg leave to submit the following:

Matters pertaining to National Legislation relating to the Drug Trade have been in a very confused condition during the past year and largely remain so at the present time.

Your Committee do not feel justified in writing a long dissertation on the subject, thereby taking up your time as well as space in the JOURNAL, while the subject matter is still in a chaotic condition and will so remain until the War Revenue Measure and other legislation of vital importance have finally been enacted.

Your Committee or rather, the members thereof with one exception are delegates to the National Drug Trade Conference and matters pertaining to legislation have been referred to them, whereby they had more support and received more consideration.

In order to maintain a Committee on National Legislation and have things pertaining to legislation given constant attention, would require a great amount of time to be given by the members of the committee and the expenditure of a considerable sum of money by the Association. The Committee has at all times been ready to coöperate in all that was of interest to pharmacy.

The recommendations of President Wulling in relation to the recognition of pharmacists in the Government service were referred to the National Drug Trade Conference and a special committee was appointed by that body who have been quite active in relation to the duty assigned them.

* Presented at Indianapolis meeting A. Ph. A., 1917. It will be noted that this report was presented prior to action of some legislation spoken of. No changes are made in the report as this, as presented, constitutes part of the proceedings.—Editor.

The Bill relating to the adoption of the Metric System, to become effective in 1920 and which was referred to in the report at the Atlantic City meeting, still remains unfinished and doubtless will do so until the affairs of the country assume a normal condition.

Senator New, of Indiana, (August, 1917) introduced an amendment, amending Section 317 of the Revenue Bill, so that the Act shall not be construed to levy any tax, in addition to the tax imposed by existing law, upon alcohol used as a solvent or preservative in any medicinal product, or upon alcohol used for other industrial purposes not resulting in a beverage. If this amendment should be adopted, the tax on non-beverage alcohol would be \$1.10 per proof gallon. As the Bill now stands, the tax on non-beverage alcohol will be \$2.20 per proof gallon, and the tax on beverage alcohol will be \$3.20 per proof gallon. As the Finance Committee has already differentiated between beverage and non-beverage alcohol, it has conceded a point which could be used to good advantage in a plea for no additional tax on non-beverage alcohol.

Within the past few days (August, 1917), the Senate Post Office Committee, by unanimous vote, favorably reported the Brossard Amendment to the Post Office Appropriation Act, exempting ethyl alcohol used for non-beverage purposes from that provision of the Act which prohibits the mailing into "dry" territory any advertisement of, or solicitation of an order for, distilled spirits. The Postmaster General declined to express an opinion on the merits of the amendment when invited to do so by the Senate Post Office Committee, stating that this was a matter for Congress to determine.

The Chairman desires to publicly express his appreciation and thanks to Mr. E. C. Brokmeyer of Washington, D. C., for the information contained in the *Bulletins* he has regularly issued in relation to National Legislation. All of which is respectfully submitted.

JOHN C. WALLACE,
S. L. HILTON,
J. H. BEAL,
CASWELL A. MAYO,
Committee.

REPORT OF THE COMMITTEE ON PREREQUISITE ARGUMENTS.*

The presentation of a rather exhaustive report on this subject at the last convention, has left but little for your committee to offer at this time. But brevity does not necessarily indicate lack of interest and may perhaps be forgiven when connected with a program already well filled.

Since success is in itself the best of arguments, it will not be amiss to point to the steady progress of prerequisite legislation during the past year when no less than three states¹—a number greater than any preceding year—have amended their pharmacy laws so as to require graduation from a reputable school of pharmacy. Efforts in several other states, though unsuccessful for one reason or another, strengthened the evidence of the increasing demand for proper professional standards. In Illinois, where twelve years had passed since the subject of establishing the prerequisite was first seriously discussed in the convention of the state pharmaceutical association, the steady growth of sentiment in favor of the measure and its repeated indorsement by the state association led to success. The fortunate presence of four druggists in the state legislature, their activity in its behalf, well seconded by the officers and members of the state pharmaceutical association and by the board of pharmacy, awakened public opinion to the merits of the measure and enabled the passage, during the closing week of the legislature, of amendments to the pharmacy law, establishing the prerequisite and making the usual exemptions for those already enrolled on the lists of the board of pharmacy. This was a notable victory since it was achieved in face of the opposition of an old and well-known drug journal, whose publisher also operates a correspondence school and has fought the prerequisite bitterly since its inception.

In Iowa, success was more rapid and not less complete, but South Carolina furnished the real surprise of the year and demonstrated the professional preparedness of the South by adopting the prerequisite early in the year and with little fuss over it.

The Minnesota pharmacists voted overwhelmingly for prerequisite, but political considerations prevented the passage of their bill.

* Presented at Indianapolis meeting, 1917.

¹ Since then Virginia and New Jersey have passed prerequisite laws.—Editor.

In all these efforts, reprints of our last report were used as campaign material and in at least one instance, Iowa, we were informed with excellent effect.

Prerequisite laws are now in force in eight states including the four largest in population and these eight states contain approximately one-third of the drug stores of the United States. Nowhere have serious attempts been made to repeal these laws. This argues well for the satisfactory working out of the prerequisite principle and is calculated to instill fresh courage into the hearts of those who have fought so well and bravely for real professional requirements.

Credit for the steadily increasing favor with which pharmacists regard the prerequisite must be accorded in large measure to the pharmaceutical journals, the great majority of whom have ably supported the movement for higher educational standards.

Thus the *American Journal of Pharmacy* (Jan. 17, pages 38-42).

"All legislation which is not built on the bed rock of the necessity of prerequisite educational requirements, tends to the multiplication of drug stores and the demoralization of the practice of pharmacy. The failure to see this has been the chief cause in preventing the universal elevation of the apothecary in the United States and has caused the multiplication of evils connected with pharmacy. The time has gone by when any but the thoroughly educated applicant can be considered competent to own and conduct a drug store." * * * * "The sale of drugs and medicines by peddlers and other unqualified merchants, dispensing by physicians, the supply of competent drug clerks, the rapidly increasing number of drug stores, and the methods to be employed for training the future pharmacists are all questions which cannot possibly be satisfactorily adjusted until pharmacy is placed upon a sound professional basis." * * * * "Educational preparedness has brought forth success and prosperity in many fields of endeavor and it will do for pharmacy what it has done for other occupations." * * * * "Legislative bodies should increase the educational qualifications requested by pharmacists and by so doing provide pharmacists for the future who would unquestionably be best fitted to give that protection which the public has a right to demand." * * * * "The real need is not for a larger number of pharmacists, but rather for better pharmacists." * * * * "The profession of pharmacy is gradually going through an evolution similar to that through which medicine has passed. Higher educational requirements for pharmacists will in time reduce the number of drug stores to a point more nearly in accord with the pharmaceutical requirements of the public." * * * * "The public demands professional pharmaceutical service and pharmacy should, therefore, be maintained under such conditions that the public may receive the best expert service."

The Pharmaceutical Era (May 1916, p. 178) says:

"The trend of the times seems to indicate that the future pharmacist who is to perform any professional service must have a professional education, and that the institution which would seek to impart this knowledge must have a substantial foundation and an equipment which can be measured by scientific methods."

Northwestern Druggist (December 1916, p. 23) states:

"Pharmacists are rapidly coming to realize that prerequisite legislation is the only reform that will save the profession of pharmacy and enable them to keep the drug business in the hands of those who are best qualified to serve the public."

The Druggists Circular (Jan. 1915, p. 4) opines:

"High School graduation as a prerequisite to pharmacy college instruction and college instruction as a prerequisite to the board examination are all right, but if these qualifications be demanded, let us take steps similar to those recently inaugurated in Illinois and arrange a special high school course for apprentices in pharmacy."

The Bulletin of Pharmacy (October 1916, p. 391) affirms:

"Pharmacy is advancing all the time, in spite of a wail of pessimism that occasionally disturbs the equilibrium of the atmosphere. Lying directly at the root of the situation is the fact that educational requirements are being made stiffer from year to year; throughout the Union, states are swinging into line in this respect. Viewed as a whole the younger element is better equipped to carry on the work than its predecessors have been."

Midland Druggist (May 1915, p. 185) demands:

"The druggist, whether he be technically educated or not, should recognize that not only in pharmacy but in every other calling, future generations will need an even better educational environment than is needed to-day, and that individual opposition here and there to progressive measures is but a drop in the ocean."

We can conceive of no greater monument which pharmacists of to-day could leave to their posterity in the profession than an educational system walled up on all sides with prerequisite requirements which would prevent the entrance into pharmacy of incompetents who seek only financial returns."

The *Pacific Pharmacist* (December 1912, p. 187) predicts:

"We believe that within five years the graduation prerequisite will prevail in the majority of the states."

If time and space permitted such quotations could be continued indefinitely. Enough have been given, however, to indicate the practical unanimity of the pharmaceutical press of the country in support of the graduation requirement and to account for the fact that its truth and importance are being constantly brought home to an increasing number of pharmacists.

Few questions of public interest can be discussed without a reference to the great war in which our country is now engaged. The recognition of pharmacy as a profession and with it the granting of commissioned rank to pharmacists is now of engrossing interest. Pharmaceutical associations everywhere are urging such recognition and a bill has been introduced into Congress providing for it through the creation of a pharmaceutical corps in the army. Pharmacists are asking why they should be discriminated against in rank as contrasted with physicians, dentists and veterinarians. In this emergency how much stronger the position of pharmacy would be if professional training were required by law throughout the country?

WILLIAM B. DAY, *Chairman.*

LETTER TO THE EDITOR.

The movement to organize the pharmaceutical forces of our country by mobilizing them under the National Pharmaceutical Service Association should meet with prompt response in every part of our much loved land. It should result in most substantial assistance toward assuring for her a just and triumphant end to the great war of the Nations.

The united counsels and action of our pharmacist educators, scientific workers and commercial and manufacturing personnel, would, in moral effect strengthen our civil establishment at Washington, cheer and comfort our brave men in arms, give assurance of unfailing help and sympathy to our gallant soldier surgeons and physicians in camps and hospitals and at the fields of battle and prove an inspiration for patriotic unity and effort to other classes of our citizens in all the states of our Union.

If there have been differences in the past, arising from the friction of conflicting scientific opinions, from clashing mercantile interests or from contending personal ambitions these should all, now, be relegated to oblivion by the new glow of patriotism that should encircle the whole domain of our profession. Every unit of our calling should summon its whole man power to meet in common to reason and consult what can best and most efficiently be done to forward the welfare of our armies and serve the needs of our people at home devising the promptest means for promoting that welfare and supplying those needs.

Unusual quantities of all the items of our Pharmacopeia are urgently required, and the demand will continue to increase. New sources of the materials of manufacture will have to be made available; the best disposition will have to be made of the labor to be had and the talent employed and new changes in methods of packing must be learned and adopted. The causes for conflict and unnecessary differences must be found and eliminated. By no means the least important to our country's best interest and our own proper desert, if we cheerfully and unitedly sustain the objects of this Association, will be the attainment of a proper recognition of pharmacists in the actual service of our Government. The arguments that have been presented to the Committee in Congress in favor of the Edmonds Bill, which gives our graduates proper recognition are unanswerable.

In our great, free country, in private life, in time of peace, our theory is that of equality. The badge of honor is the badge of good citizenship and worthy conduct, but war requires the necessary insignia of distinctive authority, and our trained and educated soldier pharmacists should be distinguished in the behalf of better service, by the usual marks of office.

When victory, followed by a just peace, shall be ours, none will be readier than they to step

into their accustomed places of service and usefulness to society, where "The rank is but the guinea's stamp—The man's the gowd for a' that."

Yours very truly,

JOS. JACOBS.

BALTIMORE, MD., MAY 1, 1918.

JOURNAL AMERICAN PHARMACEUTICAL ASSOCIATION,*
Philadelphia, Pa.

The proposition to conserve supplies of glycerin, sugar and alcohol has been extensively discussed in the journals notably by Mr. F. A. Upshur Smith; but it is evident that much at least of the proposed change of formula is based on theoretical and not practical knowledge. It is easy to recommend and to work out upon paper how these three substances might be reduced or eliminated from the formulas in which they occur. It is much more difficult and requires to a great extent the element of time to determine to what extent even the slightest reduction of any of them may not materially affect both the therapeutic strength and consequent efficiency and the keeping qualities of the preparations in question.

Our orator Mr. Smith affirms in confronting this criticism that extemporaneous preparations would eliminate the needed keeping qualities and that druggists should in the interest of conservation make their own preparations for immediate dispensing rather than buy them as heretofore already prepared. Our orator, overlooks however, the fact that the Pure Food & Drugs Law is fully in force and that its requirements must be met on extemporaneous as well as permanent preparations and he forgets that the mere reduction of ten percent of glycerin or alcohol may change the entire strength or consistency or both of the preparation. The whole propaganda smacks of the notoriety variety and seems to your committee on Standards and Deterioration to be devoid of any value beyond that of suggesting that the formulas of the U. S. P. and N. F. be carefully studied and revised if possible with an eye to conserving these three items whenever and wherever possible. The United States Food Administration, through Mr. Charles W. Merrill, in charge of conservation of chemicals issued a bulletin as the result of the above propaganda and the American Drug Manufacturers' Association, through its executive committee which held a meeting in Detroit on March 2, 1918, instructed its Control Committee of its committee on Standards and Deterioration to proceed at once to Washington and ask for a hearing upon this important subject. Accordingly on Friday, April 12th at 11.00 A.M. there met in Room 410 of the Council of National Defense Building, Messrs. B. E. Reuter, W. C. Hughes and C. W. Merrill of the Food Administration, Mr. L. L. Summers of the War Industries Board, Drs. Alsberg, Kebler and Ewing of the Bureau of Chemistry. Mr. A. Homer Smith of the Medical Section, Council of National Defense, Major J. K. Mitchell of the U. S. Signal Corps and Drs. A. R. L. Dohme and F. R. Eldred of the Committee on Standards and Deterioration of the American Drug Manufacturers' Association.

Mr. Homer Smith presided and Mr. Summers at once pointed out that there was no need or occasion to conserve any alcohol as there was and would be plenty and yet more for a long time to come and that in his opinion, it was unwise to conserve it in medicinal preparations both because it represented but a very small part of the total consumption and this part could and should be conserved, should it become necessary, from uses far less essential and important than medicines. In fact, he went further and urged that the restrictions now placed upon the use of denatured and non-beverage alcohol be revised or made less severe because he had heard from hundreds of sources the difficulty of securing the necessary alcohol for treating the sick or preparing medicines in the pharmacies. This was uncalled for and should be changed by Congress as nurses, patients and pharmacists should be able to get the needed alcohol for treating and healing the sick. Thus the alcohol conservation fell by the wayside.

The same thing developed when sugar was considered and Dr. Dohme stated that the amount of sugar used in medicinal preparations amounts to about \$8,000,000 per year and represents about two-tenths of one percent of the amount used by confectioners and it was agreed that conservation of sugar in medicinal preparations was not to be considered as it is too infinitesimal to affect the consumption of sugar in this country.

* It should perhaps be stated that the Editorial relating to this subject was written before this communication was received.

This then left glycerin as the one item of the three under consideration to be conserved because the total output was less than either of the other two items and its use in war materials was increasingly important. Dr. Dohme pointed out that there were used in medicinal preparations about \$2,000,000 worth of glycerin based upon a fifty cent per pound price or 4,000,000 pounds and Dr. Alsberg pointed out that this represents about one-twentieth of the entire requirements of the country. If we add to this the amount now used in proprietary medicines and in toilet preparations it would make a total of about 10 million pounds of glycerin used in all drugs and toilet preparations and this represents about one-eighth of the country's requirements.

Thus the conservation in medicinal preparations, after a careful study of the situation, has resolved itself into the one item glycerin and regarding this Mr. Merrill advised us that probably no conservation would be necessary this year but probably would be next year. Dr. Alsberg in conclusion stated that we all feel that there are other steps that can be taken to meet the glycerin shortage besides affecting a change in medicinal products. Such other steps should be taken first. Every possible means, said he, of saving this glycerin should be exhausted before the pharmaceutical industry is touched. We feel that at some time, perhaps not this year or next or the year after that, but we don't think this applies to the present, the situation may arise that it will be necessary to touch the pharmaceutical products. He further pointed out that such changes in formulas of the U. S. P. or N. F. could not be made legally as these books were the legal standards by an integral part of our federal law and could not be changed except by Congress and he for one would not advocate any such change at this time.

In conclusion Dr. Dohme on behalf of the Committee on Standards and Deterioration of the American Drug Manufacturers' Association, who brought this hearing about states that that committee would undertake a study of the medicinal preparations of its members both official and unofficial with the purpose and intention of conserving glycerin in them wherever they found it safe and advisable to do so.

A. R. L. DOHME,

Chairman Committee on Standards and Deteriorations.

REPORT OF THE TREASURER OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

JANUARY 1, 1917, TO JANUARY 1, 1918

By HENRY M. WHELPLEY, St. Louis, Mo

Receipts.

| | |
|--------------------------------------------------------------|-------------------|
| Cash on hand, January 1, 1917 (current account) | \$ 4,995.30 |
| Cash on hand, January 1, 1917 (National Formulary) | 13,903.67 |
| Annual dues and Journal 1915 (Jan. 1, 1915 to Dec. 31, 1915) | \$ 5.00 |
| Annual dues and Journal 1916 (Jan. 1, 1916 to Dec. 31, 1916) | 230.00 |
| Annual dues and Journal 1917 (Jan. 1, 1917 to Dec. 31, 1917) | 9,050.00 |
| Annual dues and Journal 1918 (Jan. 1, 1918 to Dec. 31, 1918) | 3,100.00 |
| Annual dues and Journal 1919 (Jan. 1, 1919 to Dec. 31, 1919) | 15.00 |
| | ————— \$12,400.00 |
| Annual dues only (Jan. 1, 1917 to Dec. 31, 1917) | 44.00 |
| Miscellaneous annual dues ¹ | 4.75 |
| Sale of 3 paper certificates of membership at \$3.00 | 9.00 |
| Sale of Year Book and Proceedings | 47.80 |
| Journal Advertising | 5,456.43 |
| Journal Subscriptions | 271.35 |
| Bank Exchange paid with dues ² | 6.84 |
| Sale of Badges and Bars | 24.75 |
| Miscellaneous | 81.70 |
| Reprints from A. Ph. A. JOURNAL | 106.84 |
| Sale of 2 A. Ph. A. Dies | 0.25 |

¹ Occasionally a resigned member pays part of the fiscal year.

² Some members add exchange or enclose postage to cover expense of mailing more than one bill.

| | | |
|------------------------------------------------------------------------------------------------------|--------------------|-------------|
| Sale of 21 Gold Membership Buttons at \$1.00..... | \$ 21.00 | |
| Sale of 24 Plated Membership Buttons at \$0.25..... | 6.00 | |
| Sale of 7 Gold Membership Pins at \$1.00..... | 7.00 | |
| Sale of 9 Plated Membership Pins at \$0.25..... | 2.25 | |
| | <hr/> | \$ 36.25 |
| Interest on St. Louis Bonds in Current Funds..... | 400.00 | |
| Interest on deposit in International Bank of St. Louis..... | 576.30 | |
| | <hr/> | 976.30 |
| | <hr/> | \$19,460.26 |
| National Formulary III..... | | 8.10 |
| National Formulary IV ³ | | 10,973.00 |
| A. Ph. A. Overhead Expenses during 1916 for National Formulary IV..... | | 6,971.18 |
| Life Membership Fee..... | 75.00 | |
| Ebert Prize Fund (from fund for award of prize for J. U. Lloyd)..... | 40.00 | |
| Endowment Fund (from Local Committee of Arrangements—1916 Meeting)..... | 27.50 | |
| Ebert Legacy Fund (sale of jewelry)..... | 27.00 | |
| | <hr/> | 169.50 |
| Life Membership Fund (interest on Massachusetts State Bonds)..... | 390.00 | |
| Centennial Fund (interest on Massachusetts State Bonds)..... | 30.00 | |
| Ebert Legacy Fund (interest on St. Louis Bonds)..... | 80.00 | |
| | <hr/> | 500.00 |
| <i>Interest on Funds in International Bank of St. Louis from January 1, 1917 to January 1, 1918.</i> | | |
| Ebert Legacy Fund..... | 65.27 | |
| Procter Monument Fund..... | 272.02 | |
| Rice Memorial Fund..... | 2.54 | |
| National Formulary Revision and Research Fund..... | 110.82 | |
| | <hr/> | 450.65 |
| <i>Interest on Funds in Boston Penny Savings Bank from January 1, 1917 to January 1, 1918.</i> | | |
| Life Membership Fund..... | 372.87 | |
| Ebert Prize Fund..... | 45.23 | |
| Centennial Fund..... | 81.57 | |
| Endowment Fund..... | 273.51 | |
| College Prize Fund..... | 1.59 | |
| | <hr/> | 774.77 |
| | <hr/> | \$58,206.49 |
| <i>Disbursements by Voucher Checks.</i> | | |
| Jan. 10. Check 2841 E. F. Greathead, printing, postage and stationery..... | | 6.00 |
| " 10 " 2842 Wm. B. Day, printing, postage and stationery..... | 10.00 | |
| | Clerical..... | 32.00 |
| | Miscellaneous..... | 4.35 |
| | Membership..... | 1.84 |
| " 10 " 2843 J. A. Koch, Committee on Unofficial Standards..... | | 18.50 |
| " 10 " 2844 Stoneman Press Co., Year Book III..... | | 2,448.61 |
| " 11 " 2845 E. G. Eberle, salaries..... | | 291.65 |
| " 11 " 2846 J. B. Lippincott & Co. | | |
| | Journal (a)..... | 442.02 |
| | Journal (b)..... | 24.29 |
| | | 466.31 |

³ See rule of Finance No. 14.

| | | | | | |
|------|----|------------|---------------------------------------------------------------|--------|----------|
| Jan. | 11 | Check 2847 | E. G. Eberle | | |
| | | | Journal (a), publication..... | 5.22 | |
| | | | Journal (b), clerical..... | 48.00 | |
| | | | Journal (c), postage and stationery..... | 17.75 | |
| | | | Journal (d), freight, drayage and miscellaneous | 0.29 | 71.26 |
| " | 15 | " | 2848 Lloyd Brothers, miscellaneous..... | | 4.89 |
| " | 23 | " | 2849 J. O. Burge, printing, postage and stationery.... | | 11.20 |
| Feb. | 2 | " | 2850 Louis C. Hesse | | |
| | | | Printing, postage and stationery..... | 3.75 | |
| | | | Women's Section..... | 13.00 | 16.75 |
| " | 6 | " | 2851 J. H. Beal, National Drug Trade Conference.... | | 72.04 |
| " | 6 | " | 2852 Lloyd Bros., miscellaneous..... | | 1.23 |
| " | 6 | " | 2853 J. O. Burge, membership..... | | 6.50 |
| " | 6 | " | 2854 F. W. Nitardy, membership..... | | 4.00 |
| " | 9 | " | 2855 S. G. Adams & Co., printing, postage and stationery..... | | 1.10 |
| " | 9 | " | 2856 Eschenbach Printing Co. | | |
| | | | Journal (a)..... | 469.18 | |
| | | | Journal (c)..... | 16.62 | 485.80 |
| " | 9 | " | 2857 E. G. Eberle, salaries..... | | 291.67 |
| " | 9 | " | 2858 E. G. Eberle | | |
| | | | Journal (a)..... | 19.84 | |
| | | | Journal (b)..... | 48.00 | |
| | | | Journal (c)..... | 11.25 | |
| | | | Journal (d)..... | 22.42 | 101.51 |
| " | 19 | " | 2859 Louis C. Hesse, Printing, postage and stationery | | 3.50 |
| " | 28 | " | 2860 E. G. Eberle, printing, postage and stationery.... | | 18.00 |
| " | 28 | " | 2861 Wm. B. Day | | |
| | | | Clerical..... | 32.00 | |
| | | | Year Book..... | 8.37 | |
| | | | National Formulary III..... | 0.49 | 40.86 |
| " | 28 | " | 2862 A. H. Fetting, badges and bars..... | | 7.60 |
| " | 28 | " | 2863 E. F. Greathead, printing, postage and stationery | | 12.20 |
| " | 28 | " | 2864 Louis C. Hesse, National Formulary IV..... | | 10.35 |
| Mar. | 5 | " | 2865 W. T. Robinson, membership..... | | 31.50 |
| " | 5 | " | 2866 W. T. Robinson, printing, postage and stationery | | 12.25 |
| " | 5 | " | 2867 Chas. M. Woodruff, National Drug Trade Conference..... | | 50.00 |
| " | 5 | " | 2868 John C. Wallace, National Drug Trade Conference..... | | 51.96 |
| " | 12 | " | 2869 Wm. B. Day | | |
| | | | Clerical..... | 32.00 | |
| | | | Membership..... | 21.00 | |
| | | | Printing, postage and stationery..... | 5.00 | |
| | | | Miscellaneous..... | 0.60 | 58.60 |
| " | 12 | " | 2870 E. G. Eberle, salaries..... | | 291.67 |
| " | 12 | " | 2871 Eschenbach Printing Co. | | |
| | | | Journal (a)..... | 461.34 | |
| | | | Journal (c)..... | 15.68 | 477.02 |
| " | 12 | " | 2872 Eschenbach Printing Co., Journal (a)..... | | 19.06 |
| " | 12 | " | 2873 E. G. Eberle | | |
| | | | Journal (a)..... | 22.80 | |
| | | | Journal (b)..... | 48.00 | |
| | | | Journal (c)..... | 25.93 | 96.73 |
| " | 12 | " | 2874 J. H. Beal, printing, postage and stationery..... | | 5.00 |
| " | 21 | " | 2875 J. B. Lippincott Co., National Formulary IV.... | | 1,507.50 |

| | | | | | |
|---------|-------|------|----------------------------------------------------|----------|--------|
| Mar. 22 | Check | 2876 | Louis C. Hesse, printing, postage and stationery | \$ 5.50 | |
| Apr. 11 | " | 2877 | Louis C. Hesse, printing, postage and stationery | 3.50 | |
| " 11 | " | 2878 | E. G. Eberle, salaries | | 291.67 |
| " 11 | " | 2879 | J. W. England | | |
| | | | Printing, postage and stationery | \$ 19.75 | |
| | | | Miscellaneous | 2.70 | 22.45 |
| " 11 | " | 2880 | Wm. B. Day | | |
| | | | Printing, postage and stationery | 27.56 | |
| | | | Clerical | 40.00 | |
| | | | Miscellaneous | 0.43 | |
| | | | Membership | 0.50 | 68.49 |
| " 11 | " | 2881 | Eschenbach Printing Co. | | |
| | | | Journal (a) | 451.25 | |
| | | | Journal (c) | 16.37 | 467.62 |
| " 11 | " | 2882 | E. G. Eberle | | |
| | | | Journal (a) | 5.03 | |
| | | | Journal (b) | 60.00 | |
| | | | Journal (c) | 16.00 | 81.03 |
| " 11 | " | 2883 | J. B. Lippincott Co., National Formulary IV | | 7.13 |
| " 11 | " | 2884 | Otto Raubenheimer, Recipe Book | | 4.62 |
| " 20 | " | 2885 | Eschenbach Printing Co., Journal (a) | | 40.09 |
| " 20 | " | 2886 | J. A. Koch, Committee on Unofficial Standards | | 7.28 |
| " 20 | " | 2887 | E. G. Eberle, Women's Section | | 10.90 |
| " 20 | " | 2888 | W. T. Robinson, Printing, postage and stationery | | 7.75 |
| May 15 | " | 2889 | E. F. Greathead, printing, postage and stationery | | 12.20 |
| " 15 | " | 2890 | Wm. B. Day | | |
| | | | Clerical | 32.00 | |
| | | | Miscellaneous | 4.95 | 36.95 |
| " 15 | " | 2891 | E. G. Eberle, salaries | | 291.67 |
| " 15 | " | 2892 | E. G. Eberle, Committee on Patents and Trade Marks | | 8.58 |
| " 15 | " | 2893 | Otto Raubenheimer, Committee on Recipe Book | | 5.40 |
| " 15 | " | 2894 | E. G. Eberle | | |
| | | | Journal (a) | 48.00 | |
| | | | Journal (b) | 5.90 | |
| | | | Journal (c) | 14.46 | 68.36 |
| " 15 | " | 2895 | Eschenbach Printing Co. | | |
| | | | Journal (a) | 403.45 | |
| | | | Journal (c) | 14.71 | 418.16 |
| " 15 | " | 2896 | Eschenbach Printing Co. | | |
| | | | Journal (a) | 10.60 | |
| | | | Membership | 3.75 | 14.35 |
| " 15 | " | 2897 | F. E. Bibbicus, membership | | 10.00 |
| " 28 | " | 2898 | Louis C. Hesse, printing, postage and stationery | | 10.25 |
| " 28 | " | 2899 | Buxton & Skinner, printing, postage and stationery | | 1.75 |
| " 28 | " | 2900 | J. H. Beal, printing, postage and stationery | | 8.22 |
| " 28 | " | 2901 | J. H. Beal, National Drug Trade Conference | | 18.25 |
| " 28 | " | 2902 | John C. Wallace, National Drug Trade Conference | | 51.51 |
| " 28 | " | 2903 | Pioneer Press, Section on Scientific Papers | | 5.45 |
| " 28 | " | 2904 | J. B. Lippincott Co., National Formulary IV | | 331.25 |
| " 28 | " | 2905 | W. T. Robinson, Year Book | | 4.00 |
| " 28 | " | 2906 | Wickersham Printing Co., miscellaneous | | 14.01 |
| June 20 | " | 2907 | Louis C. Hesse, printing, postage and stationery | | 6.75 |
| " 20 | " | 2908 | Eschenbach Printing Co. | | |
| | | | Journal (a) | 348.82 | |
| | | | Journal (b) | 12.96 | 361.78 |

June 20 Check 2909 E. G. Eberle

| | | | | |
|------|----|----------------------------------------------------------------------------------|---------|-----------|
| | | Journal (a)..... | \$15.30 | |
| | | Journal (b)..... | 60.00 | |
| | | Journal (c)..... | 21.24 | \$ 96.54 |
| " | 20 | " 2910 G. E. Stechert, Journal (d)..... | | 3.50 |
| " | 20 | " 2911 E. G. Eberle, salaries..... | | 291.67 |
| " | 28 | " 2912 Wm. B. Day, clerical expense..... | | 40.00 |
| " | 28 | " 2913 Louis C. Hesse, printing, postage and stationery..... | | 4.75 |
| " | 28 | " 2914 Lloyd Bros., miscellaneous..... | | 2.40 |
| July | 9 | " 2915 Louis C. Hesse, printing, postage and stationery..... | | 6.75 |
| " | 7 | " 2916 J. W. England, salaries..... | | 150.00 |
| " | 7 | " 2917 H. V. Army, salaries..... | | 300.00 |
| " | 7 | " 2918 Wm. B. Day, salaries..... | | 375.00 |
| " | 7 | " 2919 Henry K. Myers, National Formulary III..... | | 2.75 |
| " | 7 | " 2920 Eschenbach Printing Co., Journal (a)..... | | 20.40 |
| " | 10 | " 2921 Wm. B. Day | | |
| | | Clerical..... | 32.00 | |
| | | Miscellaneous..... | 3.00 | 35.00 |
| " | 10 | " 2922 E. G. Eberle, salaries..... | | 291.67 |
| " | 10 | " 2923 E. G. Eberle | | |
| | | Journal (a)..... | 15.24 | |
| | | Journal (b)..... | 48.00 | |
| | | Journal (c)..... | 19.00 | 82.24 |
| " | 10 | " 2924 Eschenbach Printing Co. | | |
| | | Journal (a)..... | 347.96 | |
| | | Journal (c)..... | 14.19 | 362.15 |
| " | 10 | " 2925 H. M. Whelpley | | |
| | | Salaries..... | 500.00 | |
| | | Printing, postage and stationery..... | 183.39 | 683.39 |
| " | 10 | " 2926 J. W. England | | |
| | | Printing, postage and stationery..... | 20.85 | |
| | | Miscellaneous..... | 1.94 | 22.79 |
| " | 10 | " 2927 J. B. Lippincott, National Formulary IV..... | | 8.00 |
| " | 10 | " 2928 U. S. Pharmacopeial Convention, National Formulary IV..... | | 25.00 |
| " | 10 | " 2929 E. F. Greathead, printing, postage and stationery..... | | 12.20 |
| " | 23 | " 2930 Louis C. Hesse, printing, postage and stationery..... | | 4.75 |
| " | 23 | " 2931 G. Horstmann, Committee on Membership..... | | 42.00 |
| " | 26 | " 2932 W. T. Robinson, printing, postage and stationery..... | | 4.50 |
| " | 26 | " 2933 E. G. Eberle, Committee on Patents and Trade Marks..... | | 1.76 |
| " | 26 | " 2934 E. G. Eberle, Committee on Recipe Book..... | | 4.62 |
| " | 26 | " 2935 Eschenbach Printing Co., Journal (a)..... | | 15.60 |
| Aug. | 6 | " 2936 Louis C. Hesse, printing, postage and stationery..... | | 24.25 |
| " | 6 | " 2937 E. G. Eberle, salaries..... | | 291.67 |
| " | 6 | " 2938 E. G. Eberle | | |
| | | Journal (a)..... | 1.50 | |
| | | Journal (b)..... | 48.00 | |
| | | Journal (c)..... | 16.74 | 66.24 |
| " | 6 | " 2939 Eschenbach Printing Co. | | |
| | | Journal (a)..... | 373.54 | |
| | | Journal (c)..... | 12.27 | 385.81 |
| " | 6 | " 2940 Wm. B. Day, clerical..... | | 32.00 |
| " | 6 | " 2941 Louis C. Hesse, printing, postage and stationery..... | | 4.75 |
| " | 22 | " 2942 A. H. Fetting, badges and bars..... | | 21.25 |
| " | 22 | " 2943 National Formulary Revision and Research Fund, National Formulary IV..... | | 13,903.67 |

AMERICAN PHARMACEUTICAL ASSOCIATION

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|----------|-------|------|---------------------------------------------------------------|----------|--------|
| Aug. 22 | Check | 2944 | Mrs. C. M. Smythe, miscellaneous..... | \$ 25.00 | |
| " 22 | " | 2945 | Eschenbach Printing Co., Year Book..... | 2,893.14 | |
| " 22 | " | 2946 | H. M. Whelpley | | |
| | | | Printing, postage and stationery..... | \$23.56 | |
| | | | Miscellaneous..... | 10.55 | 34.11 |
| Sept. 5 | " | 2947 | W. T. Robinson, printing, postage and stationery..... | | 2.50 |
| " 5 | " | 2948 | Anna G. Bagley, membership..... | | 6.70 |
| " 5 | " | 2949 | J. B. Lippincott Co., National Formulary IV..... | | 2.50 |
| " 5 | " | 2950 | H. V. Army, Year Book IV..... | | 13.76 |
| " 5 | " | 2951 | Louis C. Hesse, printing, postage and stationery..... | | 4.50 |
| " 5 | " | 2952 | Buxton & Skinner, printing, postage and stationery..... | | 1.20 |
| " 5 | " | 2953 | Wm. B. Day | | |
| | | | Printing, postage and stationery..... | 16.83 | |
| | | | Clerical..... | 40.00 | |
| | | | Year Book IV..... | 0.50 | 57.33 |
| " 12 | " | 2954 | E. G. Eberle | | |
| | | | Salaries..... | 291.67 | |
| | | | Traveling Expenses..... | 100.00 | |
| | | | Journal (a)..... | 8.76 | |
| | | | Journal (b)..... | 60.00 | |
| | | | Journal (c)..... | 10.00 | |
| | | | Journal (d)..... | 1.25 | 471.68 |
| " 12 | " | 2955 | Eschenbach Printing Co. | | |
| | | | Journal (a)..... | 430.38 | |
| | | | Journal (c)..... | 15.33 | 445.71 |
| " 12 | " | 2956 | C. B. Jordan, Section on Education and Legislation..... | | 7.50 |
| " 12 | " | 2957 | P. Henry Utech, Section on Commercial Interests..... | | 13.50 |
| " 12 | " | 2958 | Wm. B. Day | | |
| | | | Traveling Expenses..... | 31.87 | |
| | | | Miscellaneous..... | 1.00 | 32.87 |
| Oct. 13 | " | 2959 | Jeannot Hostinann, membership..... | | 134.00 |
| " 14 | " | 2960 | Eschenbach Printing Co. | | |
| | | | Printing, postage and stationery..... | 45.00 | |
| | | | Journal (a)..... | 7.35 | |
| | | | Journal (d)..... | 1.56 | 53.91 |
| " 14 | " | 2961 | Edward F. Whaley, Est., printing, postage and stationery..... | | 32.00 |
| " 19 | " | 2962 | J. W. England, traveling expenses..... | | 76.66 |
| Sept. 21 | " | 2963 | General Shorthand Reporting Co., stenographers..... | | 278.04 |
| Oct. 2 | " | 2964 | W. W. Stockberger, Scientific Section..... | | 5.60 |
| " 12 | " | 2965 | Maritz Jewelry Mfg. Co., buttons and pins..... | | 71.25 |
| " 10 | " | 2966 | E. G. Eberle | | |
| | | | Salaries..... | 291.67 | |
| | | | Journal (b)..... | 48.00 | |
| | | | Journal (c)..... | 10.00 | 349.67 |
| " 10 | " | 2967 | Eschenbach Printing Co. | | |
| | | | Journal (a)..... | 366.38 | |
| | | | Journal (c)..... | 13.38 | 379.76 |
| " 10 | " | 2968 | Wm. B. Day | | |
| | | | Clerical..... | 32.00 | |
| | | | Miscellaneous..... | 3.00 | 35.00 |
| " 22 | " | 2969 | C. M. Snow, Treas., National Syllabus Committee..... | | 25.00 |
| " 22 | " | 2970 | Chas. W. Palmer, Committee on Unofficial Standards..... | | 6.75 |

| | | | | |
|---------|-------------|-----------------------------------------------------------------------------------|----------|----------|
| Oct. 31 | [Check 2971 | Fidelity & Deposit Co. of Md., Premium on Treasurer's Bond..... | | \$ 37.50 |
| " 31 | " 2972 | International Bank of St. Louis, Liberty Bonds..... | | 200.00 |
| " 31 | " 2973 | E. N. Gathercoal, membership..... | | 22.00 |
| " 31 | " 2974 | J. H. Beal, printing, postage and stationery..... | | 5.00 |
| " 31 | " 2975 | W. T. Robinson, printing, postage and stationery..... | | 57.50 |
| Nov. 1 | " 2976 | Eschenbach Printing Co., Journal (a)..... | | 18.75 |
| " 1 | " 2977 | E. F. Greathead, printing, postage and stationery..... | | 12.20 |
| " 1 | " 2978 | Louis C. Hesse, National Formulary IV..... | | 7.10 |
| " 1 | " 2979 | J. B. Lippincott Co., National Formulary IV.... | | 228.75 |
| " 9 | " 2980 | Harlan P. Kelly, Sec'y-Treas., Joint Committee on Horticultural Nomenclature..... | | 25.00 |
| " 9 | " 2981 | American Metric Association Special..... | | 10.00 |
| " 9 | " 2982 | Wm. B. Day | | |
| | | Printing, postage and stationery..... | \$ 59.00 | |
| | | Clerical..... | 32.00 | 91.00 |
| " 9 | " 2983 | Eschenbach Printing Co. | | |
| | | Journal (a)..... | 364.59 | |
| | | Journal (b)..... | 14.61 | |
| | | Journal (a)..... | 6.25 | 385.45 |
| " 9 | " 2984 | E. G. Eberle | | |
| | | Salaries..... | 291.67 | |
| | | Journal (a)..... | 9.05 | |
| | | Journal (b)..... | 52.50 | |
| | | Journal (c)..... | 30.00 | 383.22 |
| " 9 | " 2985 | Louis C. Hesse, printing, postage and stationery..... | | 7.50 |
| " 13 | " 2986 | Louis C. Hesse, printing, postage and stationery..... | | 7.75 |
| " 13 | " 2987 | Title Guaranty & Trust Co., miscellaneous..... | | 5.00 |
| " 13 | " 2988 | Louis C. Hesse, printing, postage and stationery..... | | 7.50 |
| " 14 | " 2989 | International Bank of St. Louis, Liberty Bonds..... | | 9,800.00 |
| " 21 | " 2990 | H. M. Whelpley, printing, postage and stationery..... | | 101.52 |
| " 21 | " 2991 | M. W. Mansfield Co., Section on Commercial Interests..... | | 5.00 |
| " 22 | " 2992 | Louis C. Hesse, printing, postage and stationery..... | | 6.75 |
| " 22 | " 2993 | J. B. Lippincott Co., National Formulary IV.... | | 720.00 |
| " 22 | " 2994 | C. B. Jordan, Section on Education and Legislation..... | | 4.50 |
| Dec. 12 | " 2995 | W. T. Robinson, printing, postage and stationery..... | | 3.50 |
| " 12 | " 2996 | E. F. Greathead, printing, postage and stationery..... | | 12.20 |
| " 12 | " 2997 | Louis C. Hesse, printing, postage and stationery..... | | 4.00 |
| " 12 | " 2998 | Wm. B. Day | | |
| | | Printing, postage and stationery..... | 11.00 | |
| | | Clerical..... | 32.00 | |
| | | Miscellaneous..... | 3.00 | |
| | | Year Book IV..... | 1.11 | 47.11 |
| " 12 | " 2999 | E. G. Eberle | | |
| | | Salaries..... | 291.67 | |
| | | Journal (a)..... | 16.35 | |
| | | Journal (b)..... | 67.50 | |
| | | Journal (c)..... | 17.74 | 393.26 |
| " 12 | " 3000 | Eschenbach Printing Co. | | |
| | | Journal (a)..... | 423.89 | |
| | | Journal (c)..... | 16.09 | |
| | | Journal (a)..... | 21.45 | |
| | | Journal (a)..... | 19.15 | 480.58 |
| " 12 | " 3001 | E. G. Eberle, Section on Education and Legislation..... | | 6.80 |

| | | | | |
|---------|------------|-------------------------------------------------------------------|---------|-------------|
| Dec. 21 | Check 3002 | J. W. England | | |
| | | Printing, postage and stationery | \$27.80 | |
| | | Miscellaneous | 1.70 | \$ 29.50 |
| " 21 | " 3003 | Eschenbach Printing Co., Journal (11) | | 4.40 |
| " 21 | " 3004 | E. G. Eberle | | |
| | | Committee on Recipe Book | 4.62 | |
| | | Miscellaneous | 2.65 | 7.27 |
| " 21 | " 3005 | E. F. Greathead, printing, postage and stationery | | 7.25 |
| " 21 | " 3006 | E. G. Eberle, Section on Education and Legis- lation | | 13.00 |
| " 27 | " 3007 | Louis C. Hesse, printing, postage and stationery | | 4.25 |
| " 27 | " 3008 | Mrs. H. R. Kenaston, Women's Section | | 29.82 |
| | | | | <hr/> |
| | | | | \$46,009.47 |

*Cash Received and Disbursed to Funds.**January 1, 1917 to January 1, 1918**Miscellaneous.*

| | | |
|--------------------------------------------------------------------------------|-------|--------|
| Life Membership Fee | 75.00 | |
| Endowment Fund (Local Committee of Arrangements for 1916 Meeting) | 27.50 | |
| Ebert Legacy Fund (Sale of Jewelry) | 27.00 | |
| | | <hr/> |
| | | 129.50 |

International Bank of St. Louis (Interest on Funds).

| | | |
|----------------------------------------------------------------------------------------------|--------|--------|
| Procter Monument Fund (Time Deposit Certificate June 30, 1916 to June 30, 1917) | 178.23 | |
| Procter Monument Fund | 93.79 | |
| Rice Memorial Fund | 2.54 | |
| Ebert Legacy Fund | 65.27 | |
| National Formulary Revision and Research Fund | 110.82 | |
| | | <hr/> |
| | | 450.65 |

Boston Penny Savings Bank (Interest on Funds)

| | | |
|----------------------------------------------------------------|--------|-------------|
| Life Membership Fund | 372.87 | |
| Ebert Prize Fund | 45.23 | |
| Centennial Fund | 81.57 | |
| Endowment Fund | 273.51 | |
| College Prize Fund | 1.59 | |
| | | <hr/> |
| | | \$774.77 |
| Life Membership Fund (Interest on Mass. State Bonds) | 390.00 | |
| Centennial Fund (Interest on Mass. State Bonds) | 30.00 | |
| Ebert Legacy Fund (Interest on St. Louis Bonds) | 80.00 | |
| | | <hr/> |
| | | \$500.00 |
| | | <hr/> |
| Total amount of disbursements | | \$47,864.31 |

*SUMMARY OF DISBURSEMENTS.**January 1, 1917 to January 1, 1918.*

| | |
|------------------------------------------------------|-------------|
| Salaries | \$ 4,825.02 |
| Printing, Postage and Stationery | 918.63 |
| Clerical Expense, Secretary's Office | 408.63 |
| National Formulary III | 3.24 |
| National Formulary IV | 16,751.25 |
| Miscellaneous Expenses | 92.40 |
| Stenographers for 1917 Annual Meeting | 278.04 |
| Traveling Expenses for 1917 Annual Meeting | 208.53 |
| Committee on Membership | 283.79 |
| Committee on Unofficial Standards | 32.53 |

| | | |
|-------------------------------------------------------|------------|-------------|
| Committee on Patents and Trade Marks..... | \$ 10.34 | |
| Year Book, Vol. 4..... | 5,369.49 | |
| Membership gold badges and bars..... | 28.85 | |
| Buttons and Pins..... | 71.25 | |
| Premium on Treasurer's Bond..... | 37.50 | |
| National Drug Trade Conference..... | 243.76 | |
| Liberty Bonds..... | 10,000.00 | |
| National Syllabus Committee..... | 25.00 | |
| American Metric Association..... | 10.00 | |
| Joint Committee on Horticultural Nomenclature..... | 25.00 | |
| A. Ph. A. Recipe Book..... | 19.26 | |
| Women's Section..... | 53.72 | |
| Section on Scientific Papers..... | 11.05 | |
| Section on Education and Legislation..... | 31.80 | |
| Section on Commercial Interests..... | 18.50 | |
| Journal (a) Publication..... | \$5,232.09 | |
| Journal (b) Clerical..... | 632.80 | |
| Journal (c) printing, postage and stationery..... | 357.71 | |
| Journal (d) freight, drayage and miscellaneous..... | 29.02 | |
| | <hr/> | 6,252.52 |
| | | \$46,009.47 |
| To Life Membership Fund..... | 837.87 | |
| To Centennial Fund..... | 111.57 | |
| To Endowment Fund..... | 301.01 | |
| To Ebert Legacy Fund..... | 172.27 | |
| To Procter Monument Fund..... | 272.02 | |
| To Rice Memorial Fund..... | 2.54 | |
| To National Formulary Revision and Research Fund..... | 110.82 | |
| To College Prize Fund..... | 1.59 | |
| To Ebert Prize Fund..... | 45.23 | |
| | <hr/> | 1,854.92 |
| Total amount of disbursements..... | | \$47,864.39 |
| To National Formulary IV..... | | 4,059.24 |
| Cash on hand January 1, 1918..... | | 6,282.86 |
| | | <hr/> |
| Total..... | | \$58,206.49 |

American Pharmaceutical Association Expenditures and Appropriations.

January 1, 1917 to January 1, 1918.

| | Expenditures. | Appropriations. |
|-------------------------------------------------|---------------|-----------------|
| Salaries..... | \$ 4,825.02 | \$ 6,150.00 |
| Printing, Postage and Stationery..... | 927.54 | 1,000.00 |
| Clerical Expense, Secretary's Office..... | 408.00 | 416.00 |
| National Formulary..... | 2,850.82 | 3,000.00 |
| Traveling Expenses for 1917 Annual Meeting..... | 208.53 | 300.00 |
| Miscellaneous expenses..... | 124.85 | 200.00 |
| Stenographers for 1917 Annual Meeting..... | 278.04 | 350.00 |
| Committee on Membership..... | 283.79 | 350.00 |
| Committee on Unofficial Standards..... | 32.53 | 100.00 |
| Committee on Patents and Trade Marks..... | 10.34 | 30.00 |
| Year Book, Vol. IV..... | 5,369.49 | 5,446.00 |
| Membership gold badges and bars..... | 28.85 | 50.00 |
| Buttons and pins..... | 71.25 | 75.00 |
| Premium on Treasurer's Bond..... | 37.50 | 50.00 |
| National Drug Trade Conference..... | 243.76 | 300.00 |

| | | |
|-----------------------------------------------------|----------|----------|
| National Syllabus Committee..... | \$25.00 | \$25.00 |
| American Metric Association..... | 10.00 | 10.00 |
| Joint Committee on Horticultural Nomenclature..... | 25.00 | 25.00 |
| Recipe Book..... | 19.26 | 50.00 |
| Women's Section..... | 53.72 | 53.72 |
| Section on Scientific Papers..... | 11.05 | 25.00 |
| Section on Education and Legislation..... | 31.80 | 32.00 |
| Section on Commercial Interests..... | 18.50 | 25.00 |
| Section on Practical Pharmacy and Dispensing..... | | 18.00 |
| Section on Historical Pharmacy..... | | 25.00 |
| Certificates of Membership..... | | 50.00 |
| Journal (a) Publication..... | 5,232.90 | 5,000.00 |
| Journal (b) Clerical..... | 632.80 | 800.00 |
| Journal (c) printing, postage and stationery..... | 357.71 | 300.00 |
| Journal (d) freight, drayage and miscellaneous..... | 29.02 | 150.00 |

\$22,147.16 \$24,406.71

Appropriations..... \$24,406.71

Expenditures..... 22,147.16

Unexpended balance..... \$ 2,259.55

The A. Ph. A. Permanent Funds, January 1, 1918.

| | 1916. | 1917. | Increase. |
|--------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------|
| Life Membership Fund..... | \$21,806.73 | \$22,644.60 | \$ 837.87 |
| Ebert Prize Fund..... | 1,128.04 | 1,133.27 | 5.23 |
| Centennial Fund..... | 2,946.11 | 3,057.68 | 111.57 |
| Endowment Fund..... | 6,563.29 | 6,864.30 | 301.01 |
| Ebert Legacy Fund..... | 4,152.20 | 4,324.47 | 172.27 |
| National Formulary Revision and Research Fund (Changed to A. Ph. A. Research Fund)..... | | 7,043.31 | 7,043.31 |
| | <hr/> \$36,596.37 | <hr/> \$45,067.63 | <hr/> \$ 8,471.26 |

Funds Held in Trust by A. Ph. A.

| | | | |
|----------------------------|-------------------|-------------------|-----------------|
| Procter Monument Fund..... | \$ 8,214.18 | \$ 8,486.20 | \$ 272.02 |
| Rice Memorial Fund..... | 175.86 | 178.40 | 2.54 |
| College Prize Fund..... | 38.42 | 40.01 | 1.59 |
| | <hr/> \$ 8,428.46 | <hr/> \$ 8,704.61 | <hr/> \$ 276.15 |

The Association Assets January 1, 1918.

| | | |
|------------------------------------|-------------------|-------------------|
| St. Louis City Bonds..... | \$10,000.00 | |
| Liberty Bonds..... | 10,000.00 | |
| Cash in Bank, January 1, 1918..... | 6,282.86 | |
| | <hr/> \$26,282.86 | |
| Available Assets..... | | \$26,282.86 |
| National Formulary..... | | 4,059.24 |
| Permanent Funds..... | | 45,067.63 |
| Funds held in Trust..... | | 8,704.61 |
| | | <hr/> \$84,114.34 |
| Total A. Ph. A. Assets..... | | \$84,114.34 |

DETAILED STATEMENT OF THE SEVERAL AMERICAN PHARMACEUTICAL ASSOCIATION FUNDS.

Life Membership Fund (Established 1870).

| | | |
|---------------------------------------------------------|-------------|-------------|
| Massachusetts 3% Registered State Bonds..... | | \$13,000.00 |
| On hand in Boston Penny Savings Bank, January 1, 1917.. | \$ 8,806.73 | |

| | | |
|--------------------------------------------------------------------------------------------|-------------|----------------------|
| Interest on deposit in Boston Penny Savings Bank, January 1, 1917 to January 1, 1918..... | \$ 372.87 | |
| Interest on Massachusetts State Bonds, January 1, 1917 to January 1, 1918..... | 390.00 | |
| Life Membership Fee (H. V. Arny)..... | 25.00 | |
| Life Membership Fee (W. L. Bradt)..... | 50.00 | |
| | <hr/> | \$837.87 \$ 9,644.60 |
| Total on hand January 1, 1918..... | | \$22,644.60 |
| Ebert Prize Fund (Established 1873). | | |
| On hand Boston Penny Savings Bank, January 1, 1917.... | | \$ 1,128.04 |
| Interest on deposit in Boston Penny Savings Bank..... | \$ 45.23 | |
| John Uri Lloyd (1915 Award)..... | 40.00 | 5.23 |
| | <hr/> | <hr/> |
| Total on hand, January 1, 1918..... | | \$ 1,133.27 |
| Centennial Fund (Established 1877). | | |
| Massachusetts 3% Registered Bonds..... | | \$ 1,000.00 |
| On hand in Boston Penny Savings Bank, January 1, 1917.. | \$ 1,946.11 | |
| Interest on bonds, January 1, 1917 to January 1, 1918.... | \$ 30.00 | |
| Interests on deposit in Boston Penny Savings Bank, January 1, 1917 to January 1, 1918..... | 81.57 | |
| Deposited in Boston Penny Savings Bank, January 1, 1917 to January 1, 1918..... | | 111.57 |
| Balance on hand in Boston Penny Savings Bank, January 1, 1918..... | | 2,057.68 |
| | | <hr/> |
| Total on hand, January 1, 1918..... | | \$ 3,057.68 |
| Endowment Fund (Established 1906). | | |
| On hand, January 1, 1917..... | | \$ 6,563.29 |
| Interest on deposit in Boston Penny Savings Bank, January 1, 1917 to January 1, 1918..... | \$ 273.51 | |
| Local Committee of Arrangements for 1916 Meeting..... | 27.50 | 301.01 |
| | <hr/> | <hr/> |
| Total on hand, January 1, 1918..... | | \$ 6,864.30 |
| Ebert Legacy Fund (Established 1909) | | |
| St. Louis City Registered 4% Gold Bonds..... | | \$ 2,000.00 |
| On hand in International Bank, January 1, 1917..... | \$ 2,152.20 | |
| Interest on St. Louis Bonds..... | \$ 80.00 | |
| Interest on deposit in International Bank, January 1, 1917 to January 1, 1918..... | 65.27 | |
| Sale of Jewelry..... | 27.00 | |
| | <hr/> | |
| Net Income..... | | 172.27 |
| | <hr/> | <hr/> |
| Balance on hand in International Bank, January 1, 1918..... | | 2,324.47 |
| | | <hr/> |
| Total on hand, January 1, 1918..... | | \$ 4,324.47 |
| National Formulary Revision and Research Fund | | |
| On hand in International Bank, August 23, 1917..... | \$13,903.67 | |
| Interest on deposit in International Bank, August 23, 1917 to January 1, 1918..... | 110.82 | |
| | <hr/> | \$14,014.49 |
| A Ph A. Overhead Expense..... | | 6,971.18 |
| | <hr/> | <hr/> |
| To American Pharmaceutical Association Research Fund..... | | 7,043.31 |
| | | <hr/> |
| | | 7,043.31 |
| | | <hr/> |
| | | 0.00 |

AMERICAN PHARMACEUTICAL RESEARCH FUND

Established in 1905 as the National Formulary Revision and Research Fund.

Changed in 1917 to American Pharmaceutical Research Fund.

On hand January 1, 1918..... \$ 7,043.31

Procter Monument Fund (Established 1904).

(Held in Trust.)

| | | |
|------------------------------------------------------------------------------------|-------------|-------------|
| On time deposit in International Bank of St. Louis, January 1, 1917... | \$ 5,092.54 | |
| Interest on time deposit at $3\frac{1}{2}\%$, June 30, 1916 to June 30, 1917..... | \$ 178.23 | |
| Certificate of deposit No. 63,008 International Bank of St. Louis..... | | 5,270.77 |
| Deposit in International Bank of St. Louis, January 1, 1917.. | 3,121.64 | |
| Interest on deposit in International Bank, January 1, 1917 to January 1, 1918..... | 93.79 | |
| | | <hr/> |
| Balance on hand in International Bank, January 1, 1918..... | | 3,215.43 |
| | | <hr/> |
| Total on hand, January 1, 1918 | | \$ 8,486.20 |

College Prize Fund (Established 1905.)

(Held in Trust.)

| | | |
|-------------------------------------------------------------------------------------------|----------|-------|
| On hand, January 1, 1917..... | \$ 38.42 | |
| Interest on deposit in Boston Penny Savings Bank, January 1, 1917 to January 1, 1918..... | | 1.59 |
| | | <hr/> |
| Total on hand January 1, 1918..... | \$ 40.01 | |

Rice Memorial Fund (Transferred from U. S. P. C. in 1913.)

(Held in Trust.)

| | | |
|-------------------------------------------------------------------------------------------------|-----------|-----------|
| On hand, January 1, 1917..... | \$ 175.86 | |
| Interest on deposit in International Bank of St. Louis, January 1, 1917 to January 1, 1918..... | | 2.54 |
| | | <hr/> |
| | | \$ 178.40 |

ST. LOUIS, MO., March 8, 1918.

We have examined the Books and Records of the AMERICAN PHARMACEUTICAL ASSOCIATION in the hands of the Treasurer, for the fiscal year ended December 31, 1917, and WE HEREBY CERTIFY that the foregoing is a correct Statement of the transactions of said Association for the period named and is also in accord with its Books of Account.

RODWAY & STONE,

[Signed]

JEFF K. STONE,

Certified Public Accountant, Missouri.

REPRINTS OF THE HEARING ON THE EDMONDS BILL.

While we have not at this time seen a copy of the printed report of the Hearing on the Edmonds Bill, we are reliably informed they are in print, and those interested should write their Congressman for a copy at once, as the supply is limited.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman*; G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio*.

Editorial Office: 253 Bourse Building, Philadelphia, Pa.

THE VISIT OF MAJOR D. A. COSSAR.

We regret that on account of duties Major Cossar could not accept of the hospitalities of the American Pharmaceutical Association. Part of a day was given to New York pharmacists, who were hastily brought together by Ex-President Caswell A. Mayo. A more extended visit was made in Toronto, where the Major made a three days' stay. It is reported that after leaving New York City, he was going to Washington and would soon thereafter return home.

The trip is said to be made in the interests of the Australian Army Medical Corps. While in Toronto he visited the Provincial "Salvarsan" laboratory and was also guest of the faculty members of the Ontario College of Pharmacy. According to the *Canadian Pharmaceutical Journal* the most interesting feature at a luncheon party of Mr. Graham, of the College, Mr. Jury and the Editor of the latter, was Major Cossar's narrative, outlining the incidents leading up to, and the establishment of the Australian Pharmacy Department of the A. M. C.

"Similar to British and Canadian experience, the utter incompetency of the old system and its antiquated methods produced the inevitable breakdown of this department. An independent member of parliament (a *rara avis* in Canadian politics) turned the spotlight on the situation, and a vigorous Minister of Defense wisely called to his aid a competent pharmacist.

"The aid afforded and advice tendered led to the organization of a department which has proved itself one of the most valuable adjuncts of the Army, and saved the Commonwealth many thousands of pounds in purchase of medical supplies."

In another article we give an outline of this department, its organization and work.

"While in Great Britain, Major Cossar was in conference with the British pharmacy authorities, and the information he imparted of the total inadequacy of the present methods, as also its gross and criminal wastefulness, was

coincident with the appointment of Mr. Glynn Jones, M. P., a special commissioner to investigate the conditions in the British A. M. C. both in France and Great Britain. Major Cossar's information is to the effect that the report of Mr. Glynn Jones, a competent pharmacist, so impressed the War Office that a reform is almost inevitable in the near future. Should this anticipation be realized, the whole problem of 'the pharmacist in the Army' will be solved for the Empire."

THE PHARMACY DEPARTMENT OF A. A. M. C.

The members of the Australian Pharmacy Corps are exclusively qualified pharmacists, enlisted under conditions similar to those which prevail with the other units of the A. M. C., physicians and veterinaries. The officers are: Senior Major, who ranks as staff officer of pharmacy service on the staff of the Director-General of the A. M. C. This position is now held by Major Cossar, who was first appointed Hon. Captain, promoted to Hon. Major, and again to full ranking Major.

Next in rank is Captain: the chief senior pharmacy officer of each state. Lieutenants are qualified pharmacists, head dispensers in general hospitals, base hospitals, and forward casualty stations. Staff-Sergeant is the lowest rank of any member of the unit, and is held by all assistant dispensers, and men in charge of medical stores.

Senior Major, the officer commanding, is responsible for all medical supplies, and through him all recommendations for purchases must be made. Captain, as chief senior officer of the State, has charge and supervision of all medical stores and supplies for his state. Lieutenant has charge of medical supplies of hospitals, casualty stations and is chief dispenser for such institutions. Staff-Sergeant is assistant dispenser under command of the Lieutenant and A. M. C. Quartermaster.

All officers in the pharmacy department must be regularly qualified pharmacists, and draw pay according to rank, as in all other units.

GASES GERMAN'S ARE USING.

According to *Drug Topics*, the following gases are or have been employed in the present war. Commenting, this publication says that both sides are now searching for a new type of poisonous gas that will be odorless, colorless and invisible. Such a discovery with practical means for application would contribute largely toward winning the war. Out of the resourceful head of some thoughtful pharmacist may come the discovery. Twenty of the gases now employed, are:

- 1—Allyl-isothiocyanate (allyl mustard oil), C_3H_5NCS (shell).
- 2—Benzyl bromide, $C_6H_5CH_2Br$ (shell).
- 3—Bromo-acetone, $CH_2Br.CO.CH_3$ (hand grenades).
- 4—Bromated methyl-ethyl-ketone (bromo-ketone), $CH_3Br.CO.C_2H_5$ or $CH_3.CO.CHBr.CH_3$ (shell). Dibromoketone, $CH_3.CO.CHBr.CH_2Br$ (shell).
- 5—Bromine, Br_2 (hand grenades).
- 6—Chloro-acetone, $CH_3Cl.CO.CH_3$ (hand grenades).
- 7—Chlorine, Cl_2 (cloud).
- 8—Chloromethyl-chloroformate (palite), $ClCOOCH_2Cl$ (shell).
- 9—Nitro-trichloro-methane (chloropierin or nitrochloroform), CCl_3NO_2 (shell).
- 10—Chlorosulphonic acid, $SO_3.H.Cl$ (hand grenades and "smoke pots").
- 11—Dichloro-diethylsulphide (mustard gas), $(CH_3CH_2)_2S$ (shell).
- 12—Dimethyl sulphate, $(CH_3)_2SO_4$ (hand grenades).
- 13—Diphenyl - chloro - arsine, $(C_6H_5)_2AsCl$ (shell).
- 14—Dichloromethyl ether, $(CH_2Cl)_2O$ (shell).
- 15—Methyl-chlorosulphonate, CH_3ClSO_3 (hand grenades).
- 16—Phenyl-carbylamine chloride, $C_6H_5NC.Cl_2$ (shell).
- 17—Phosgene (carbonyl chloride), $COCl_2$ (cloud and shell).
- 18—Sulphur trioxide, SO_3 (hand grenades and shell).
- 19—Trichloromethyl-chloroformate (diphosgene, superpalite), $ClCOOCCl_2$ (shell).
- 20—Xylyl bromide (tolyl bromide), $CH_3C_6H_4CH_2Br$ (shell).

ETHICAL PRESCRIPTION BLANK.

Edward V. Sheely, member of the A. Ph. A., has sent us a pad of prescription blanks, which he has named "Liberty Prescription Blank."

The Memphis Medical Association opposed the use of blanks bearing the name of pharmacists. The movement was favored by Memphis pharmacists who requested that ethical American drugs be used as far as possible, and this statement occurs on the blank with the name indicated above and two flags. The blanks are enclosed in cover with the name of the pharmacist, in this case that of Mr. Sheely and also bears the insignia of the A. Ph. A. The suggestion might well be generally followed.

SACCHARIN AS A SUGAR SUBSTITUTE.

According to the *Lancet*, the only interpretation of the very general use nowadays of saccharin is that a large section of the public value sugar merely for its sweetness and not for its food value or for its high calorific position. If the inherent property of sugar did not happen to be sweetness the employment of saccharin in its stead would be meaningless. This is an important point, because if a large proportion of the public seeks only a sweetener in using sugar in their beverages, then their demand can readily be satisfied by a sweetener substitute such as saccharin. In that case a considerable amount of sugar will be saved for those who use it for its real food purposes, and particularly for young growing people, to whom its energy value is of considerable importance. Sugar cannot be replaced by saccharin in the preservation of milk or in the preparation of jam, and the use of saccharin in beverages like tea and coffee will afford an important saving of sugar for such purposes. It remains to consider whether the use of saccharin for sweetening purposes is likely to disturb the health of the consumer. The evidence that saccharin did not appear to produce any harm in the organism was summed up in the *Lancet* last September and there is still no ground for thinking that it is in any way harmful, while its sweetening power is so great that only minute quantities suffice to satisfy the palate. It should be remembered that the use of saccharin has been prohibited in those cases where, by replacing sugar, the consumer would lose the food value contributed by that substance. Saccharin has no food value whatever.

Great Britain has taken control of the entire output of British saccharin and is to be distributed by or under supervision of the British Food Ministry.

LIBERTY LOAN SUBSCRIPTIONS THROUGH DRUG AND CHEMICAL INDUSTRIES.

When this is read the subscriptions to the Third Liberty Loan will have been closed and beyond a question in excess of the minimum. Every indication shows that the drug and chemical industries have contributed their part as heretofore and in excess of contributions to former loans.

MAKE OUR SODA FOUNTAINS SAFE FOR THIRSTY HUMANITY.

The *New York Herald* of April 7 has an article on the above subject, which is timely, not only because sanitary conditions should obtain about the soda fountain but also because the continued success of the business demands it. A boycott has been declared, according to the *White Plains (N. Y.) Record*, against dirty soda fountains and service. By educating the people to the importance of sanitary conditions it is hoped to hasten the day when no owner of a soda fountain can expect to attract patronage unless he maintains a high degree of cleanliness in his service.

SHOULDER STRAPS FOR WOMEN NURSES.

According to a recent issue of the *Official Bulletin* Mrs. Helen Hoy Greely of New York

City, before the Military Affairs Committee, advocated shoulder straps for women military nurses. She urged that medical women and women workers in military hospitals abroad should receive commissions. Military nurses, she contended, need rank of some sort to compel obedience in the hospitals.

We quite agree and again we repeat pharmacists should be given rank for this and equally important other reasons which have frequently been urged, so far without results.

Richard Edward White, associate editor of the *Pacific Pharmacist*, a pioneer druggist of San Francisco and known as a poet and prose writer, died on March 14 after an illness of six weeks. One of his poems, "The Midnight Mass," a legend of Carmelo Mission at Monterey, won fame for him as a poet. He published a volume of poems and some songs, and he belonged to a circle of men and women active in literary and art work in San Francisco. He was born in Dublin in 1843.

Powers-Weightman-Rosengarten Co., chemical manufacturers, are celebrating the 100th anniversary of the founding of the business. In a handsome souvenir the faces of the founders appear as well as pictures of the successive buildings of the firm, which show great expansion. The founders were John Farr, Thomas H. Powers, William Weightman, and George D. Rosengarten.

SOCIETIES AND COLLEGES.

THE CHICAGO MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The time for the next annual convention of the A. Ph. A., to be held in Chicago during the week beginning August 12, is fast approaching. Officers of the different Sections have been busy and the Local Secretary, with the cooperation of druggists generally in Chicago, is actively engaged in preparation for the event. As far as possible papers to be read before the Sections should be accompanied by abstracts. It would add materially, if the programs of the Sections, listing these papers, would in a briefer abstract convey to the members an idea of their substance. Papers should be typewritten, double space between lines. It would be advantageous if the July and August issues of the *JOURNAL* could present the programs to the readers. Writers of the

papers should realize that the officers must have time to look over them so as to arrange the programs for the different sessions.

A FEDERATED AMERICAN PHARMA- CEUTICAL ASSOCIATION.

President A. R. L. Dohme has prepared a tentative plan for federating the American Pharmaceutical Association. This federation provides for a House of Delegates, a Council and a Board of Control. The first body is to be made of duly selected and elected delegates of the respective sections represented in the House of Delegates. In this tentative provision there are to be five delegates from each of the following organizations: N. A. R. D., N. W. D. A., A. D. M. A., P. A. of A., A. A. of Ph. C., N. A. B. P., A. C. of P. F., N. D. C. A., and U. S. Government Departments. Each State Pharmaceutical Association is to be

represented by two delegates, and each Local Branch of the A. Ph. A., consolidated with that of the N. A. R. D. branch by one delegate. Individual members not attached to any of these sections shall be entitled to the services and publications of the Association by paying their membership fee, but will not be entitled to a vote. All general business of the association is to be transacted by the House of Delegates, such as legislation, reception of delegates of sister associations, education, finances and association funds and prizes, reports of bureaus of the association, officers of the association and all matters bearing upon the relations of the drug trade and pharmacy to all outside interests and agencies such as government of nation and state and foreign nations and associations, other associations and agencies shall be discussed and acted upon. Its delegates shall be made up of five official delegates duly appointed or elected by each section so that each division of the drug industries, through its accredited association, is represented and also the interested departments of the U. S. Government, and the State Pharmaceutical Associations.

The Council is to be elected by the House of Delegates and to consist of two members from each of the Sections represented, except the local branches.

The Board of Control is to be elected by the Council and to consist of three members—a chemist, a pharmacist and a lawyer—all with pharmaceutical knowledge to act as executive committee of Council and House of Delegates and to have charge of association affairs and laboratories, bureaus and offices all through the year.

The details are further explained in President Dohme's presentation of the plan.

COUNCIL—The Council shall be elected annually by the House of Delegates but its members need not necessarily be members of the House of Delegates, although they must be members of the Association. Each trade section shall be represented in the Council by two Councillors, making eighteen Councillors, to which should be added three Councillors at large elected by the House of Delegates, who shall be chosen from the State Pharmaceutical Associations and Local Branches. One Councillor shall be elected by each section for a term of three years and one for two years, and the three Councillors at large shall be elected for one, two and three years, respectively. This will change the personnel of the Council every

year to some extent but still permit the average Councillor to serve long enough to become fully acquainted with the work of the Association. Councillors are eligible for re-election, but it is not intended that the Council shall be a self-perpetuating body. All business shall originate in the House of Delegates. The general secretary of the Association shall be secretary of the Council.

BOARD OF CONTROL—This shall consist of three members annually elected by the Council of the Association and shall have charge of the active management of its affairs during the year. They are to occupy the permanent offices and have charge of the bureaus and laboratories of the Association and shall reside in the city where these offices and laboratories are located, although they need not necessarily be residents of that city. They are to be paid salaries sufficiently large to justify them in devoting all their time to the work of the Association. One of them shall be an expert chemist and have charge of the chemical work and laboratories, one an expert pharmacist and business man to have charge of the business and pharmaceutical work of the Association, and one a legal expert with drug experience to have charge of the legal affairs of the Association. It is intended that they shall be permanently in office but it is thought advisable to elect them annually so as to provide for removal or replacement for any cause that may justify such action in the opinion of the Council. They shall be the executive and judicial side of the Association and shall have all reports, papers and addresses submitted to them before the annual meeting and with the assistance of the secretary shall prepare a proper digest of same to be presented by them to the meetings of the Association so as to save time and thus devote more time to the discussion rather than to the reading in full of such reports, addresses, etc.

They shall also act as the committee upon publication and publicity of the Association, in which capacity they shall have as associates the editor of the JOURNAL of the Association and the general secretary. The editor of the JOURNAL shall, however, have complete charge of the JOURNAL editorially, although the decision as to publication and general publicity of all matters pertaining to the Association shall be vested in the Publication Committee.

TRADE SECTIONS—These are the leading features of the federation idea, for without them it would manifestly be impossible to federate

such distinctly different interests as retailer, wholesaler, manufacturer, physicians' supply houses, colleges of pharmacy, proprietary manufacturers, etc., etc. They represent the present national associations interested in the drug trade and the plan is to have these associations retain their present organization and activities in so far as these pertain specifically to the branch of the trade covered by the respective association. Thus the N. W. D. A. will continue to discuss, decide and act upon all questions pertaining to the wholesale drug trade as they have heretofore handled them, and the same for the N. A. R. D., representing the retailer; the A. D. M. A., representing the manufacturer; the A. A. of Ph. C., representing the physicians' supply business; the Proprietary Association, the proprietary medicine business; the A. C. of P. F., the system of pharmaceutical education; the N. A. B. P., the preliminary and prerequisite requirements, examinations, etc., etc.

All matters of all of them that pertain to legislation, ethics, education, research, relations to city, state and federal governments, bureaus, agencies, etc., shall come up in the general sessions and be acted upon there. They shall have their own officers if they so decide and their president shall be, by virtue of his election, also a vice-president of the Association.

MEETINGS—It is expected and hoped that each and every such trade section shall hold its annual meeting if possible at the same time and place as the parent body, the federated A. Ph. A., but in a separate hall, as does the A. M. A. and its numerous sections. In this way all the various branches of the trade will have an opportunity of seeing and meeting one another and perhaps thereby saving each other special trips for that purpose. While it is preferable to hold such meetings at the place where the permanent offices of the Association are located, this is not necessary, and it is thought that this could be done every other year, thus holding every other meeting in some other section of the country.

A. PH. A. SECTIONS—These shall consist of the same sections as at present existing in the A. Ph. A., viz., Scientific, Historical, Practical Pharmacy and Dispensing, etc., and shall each be presided over by a chairman and officers annually elected by the sections. They shall hold these meetings as heretofore and as provided for by the Committee of Arrangements

consisting of the Board of Control, the local secretary and the general secretary.

BUREAUS—There shall be provided in the General Offices of the Association at its permanent home certain bureaus all to be under the direction and management of the Board of Control, with power to employ such clerical help and expert assistants as they may deem desirable and necessary with and by consent of the Association acting through its House of Delegates and Council.

a—Bureau of Chemistry and Pharmacy:

This shall have facilities for testing and examining and passing upon all products or preparations sent it by any members to determine their compliance with law, their label and in general get the Bureau's stamp of approval of the product without of course involving any legal responsibility whatsoever for such advice and examination. This Bureau shall also do such testing and assays for members as may come before it and also any research work of its own that its director may deem advisable upon approval by the Board of Control.

b—Bureau of Registration of Trademarks and Patents:

This Bureau shall keep a registration of all trademarks and patents granted to or belonging to members and issue in the Association JOURNAL reports upon same at such times as may be desirable. It shall also investigate trademarks and patents and secure same for members upon payment of the actual expense involved in same.

c—Bureau of Law, Accounting, Cost Price Systems, Advertising and Freight:

This Bureau shall be the legal bureau of the Association and shall advise membership upon all legal questions or other matters embraced in the subjects covered by the title.

d—Bureau of Exchange of Unsalable Goods:

This Bureau shall be a clearing house for exchanging of unsalable goods for members for salable ones provided the Bureau by being and keeping in touch with markets in the various sections of the country, can place them successfully in a part of the country to a member where they are salable. This will reduce extent of capital in business by reducing unnecessary stocks and will save manufacturers much annoyance by reducing the amount of returned goods.

e—Bureau of Employment and Registration of Employees: This Bureau, by developing a system of records of employees who may be seeking employment through it, will serve not only to secure employees for employers needing same, but will be able eventually to supply some useful data concerning the employee's record by writing to prior employers and gathering together the facts.

FINANCES—There will doubtless be some funds necessary to insure the rent of the offices and laboratories for a year and to furnish said offices and laboratories with furniture, apparatus and supplies. Perhaps some of the various "Funds" of the A. Ph. A., of which the majority are now serving little or no purpose except to accumulate interest, may be made the nucleus of the funds necessary to furnish and equip the offices and laboratories. The remainder can be secured by voluntary cash contributions of members. We had better rent such offices for the first few years to feel along our way before putting a large sum of money into real estate. It will then be time to decide if, as in case of the A. M. A., such rented quarters will be found to meet all our requirements, as I think they will. To maintain the expenses of the salary list, rent, bureaus, journals, publicity, legislative work, etc., it will require and justify a membership fee of ten dollars per year, which the services rendered will fully warrant for any member. We should secure at least 15,000 members and I think we can secure fully 20,000, and perhaps 25,000 members, because we have something real and valuable to offer the members in service, protection and information. On the basis of 15,000 members the plan will be self-sustaining, as will the journal or journals be, representing as they do the interests of a united industry which will practically unanimously respond in advertising and subscription to membership. Firms and corporations may as such be members of their trade sections as at present, but only individuals may be members of the Federated A. Ph. A.

THE NATIONAL PHARMACEUTICAL SERVICE ASSOCIATION.

At the regular monthly meeting of the National Pharmaceutical Service Association held April 9th, 121 applications for membership were acted upon, bringing the total membership in the association well above the 1200 mark.

Although less than one year old, this asso-

ciation has made great progress, and one of the very encouraging reports at the April meeting was that of the President, who stated that Congressman Edmonds had notified him that the propaganda work which had been done, was bearing fruit, in that the number of Congressmen who were interested in seeing the Edmonds Bill passed was constantly increasing. Instead of being urged to vote for the measure, many of them are coming to Congressman Edmonds and offering their aid in having the bill pass the House.

E. G. Eberle reported for the delegation which had been sent by the association to attend the Conference on the Edmonds Bill at Baltimore, March 18th, and the hearing at Washington, March 10th. A proposition from Mr. C. A. Mayo of New York to have petitions signed by members of the families of soldiers, asking that the Edmonds Bill be passed, was laid before the association, and it was decided to bring this matter before every member at an early date, so as to get the greatest value from this propaganda while the Committee on Military Affairs has the Edmonds Bill under consideration.

Ambrose Hunsberger reported that the support of the Philadelphia County Medical Society has been enlisted in this measure, and that they have appointed a committee of five physicians to cooperate in having the bill passed. The matter of sending literature on the newer antiseptic products to pharmacists now in the service was then discussed, and the committee which had been appointed for that purpose was instructed to consider it further.

Plans are being made by the Executive Committee to make the annual meeting of the association, which will be held some time during the second week of June, as comprehensive as possible.

OHIO BRANCH OF NATIONAL PHARMACEUTICAL SERVICE ASSOCIATION.

Prof. W. P. Rogers, former dean of the Cincinnati University Law School, at a meeting of the Ohio Branch of the National Pharmaceutical Service Association at the Hotel Gibson, Cincinnati, April 5th, made a patriotic plea for the recognition of pharmacists by the United States Government. Prof. John Uri Lloyd and Dr. Frank Cain were the other speakers, both urging a continuation of organized effort to secure the establishment of Pharmaceutical Corps in the American army. President Louis Werner, Sr., appointed the following committees:

Executive Committee—O. B. Thuma, F. W. Kisker, B. J. Pardick, Milton Franken, E. L. Pieck, Theodore D. Wetterstroem, Henry B. Waltermann, Theodore Rosenthal and E. C. Widrig.

Pharmacy Committee—Louis Heister, R. H. Cox, William L. B. Brittain, A. J. Doering, Alfred DeLang, Victor Muhlberg, Edwin Heinemann, E. A. Stuntebeck.

Advisory Medical Committee—Dr. E. O. Smith, Dr. B. Merrill Ricketts, Dr. E. W. Mitchell.

Advisory Legal Committee—Judge Smith Hickenlooper, Max Levy, Chester R. Shook.

Citizens' Committee—Judge David Davis, D. C. Keller, Charles G. Merrell.

STATE ASSOCIATION MEETINGS.

The following State Pharmaceutical Associations have held or will hold meetings during May, the dates and names of secretaries are given: Arkansas at Little Rock, 8-10, Miss Mary A. Fein; Kansas at Kansas City, 14-16, D. von Riesen, Maryville; Louisiana at New Iberia, 14-16, G. W. McDuff, New Orleans; Texas at Waco, 21-23, W. H. Cousins, Dallas.

The June meetings are: Alabama at Huntsville, 19-20, W. E. Bingham, Tuscaloosa. Colorado at Manitou, 18-20, Chas. J. Clayton, Denver; Delaware at Wilmington, 6, Miss Nora V. Brendle, Wilmington; Florida at Tampa, 12-13, J. H. Haughton, Palatka; Georgia at Tybee Island, 18-19, T. A. Cheatham, Atlanta; Idaho at Nampa, 12-13, Vic. Stolle, Boise; Illinois at LaSalle, 19-22, W. B. Day, Chicago; Indiana at Lafayette, 25-27, Wm. F. Werner, Indianapolis; Iowa at Fort Dodge, 25-27, Al. Falkenhainer, Algona; Kentucky

at Cerulean Springs, 18-20, J. W. Gayle, Frankfort; Maine, at Portland, 27-28, Dr. M. L. Porter, Danforth; Massachusetts at Swampscott, 17-19, James F. Guerin, Worcester; Michigan at Detroit, 25-27, F. J. Wheaton, Jackson; Missouri at Excelsior Springs, 11-14, Dr. H. M. Whelpley, St. Louis; Nebraska at Lincoln, 11-13, J. G. McBride, University Place; New Jersey at Spring Lake, 18-21, Jeannot Hostmann, Hoboken; New York at Catskill, 25-28, E. S. Dawson, Syracuse; North Carolina at Raleigh, 19-21, J. G. Beard, Chapel Hill; Ohio, Steamer at Toledo, 21-26, Theo. D. Wetterstroem, Cincinnati; Pennsylvania at Wilkes-Barre, 25-27, Robert P. Fischelis, Philadelphia; Utah at Provo, 19-20, F. J. Folland, Salt Lake City; Wisconsin, Elkhart Lake, 25-28, E. G. Rauber, Milwaukee.

NATIONAL ASSOCIATION OF MANUFACTURERS OF FRUIT AND FLAVORING SYRUPS.

An association of syrup manufacturers has been organized, representing nearly all of the establishments engaged in this growing industry. The first officers of the association are: *President*, M. E. Murray, president of the Murray Company, Boston; *Vice-President*, H. T. Cumming, secretary of J. Hungerford-Smith Company, Rochester; *Treasurer*, Edward H. Clark, treasurer of Richardson Corporation, Rochester; *Secretary*, W. W. Maltby of the Liquid Carbonic Company, Chicago. *Delegates-at-large*: A. H. Van Gorder, of the Cleveland Fruit Juice Company; K. H. Kalbfleisch, of the Joseph Middleby Company; Mr. Davidson, of Armour & Co., Chicago.

THE PHARMACIST AND THE LAW.

LABELS BEARING GUARANTY AND SERIAL NUMBER MAY BE USED UNTIL SUPPLY IS EXHAUSTED.

The Bureau of Chemistry of the Department of Agriculture, by an informal ruling authorizes manufacturers having stocks of labels bearing the guaranty and serial number, the employment of which after May 1, 1918, has heretofore been prohibited, to continue to use such labels after May 1, until their stocks are exhausted. The Department will expect, however, that manufacturers will abandon the use of the guaranty and serial number on all new labels and will assume that all labels upon

which the guaranty and serial number appear were printed prior to the issuance of the order prohibiting the use of such labels after May 1, 1918.

WHITNEY BILL TO BECOME A LAW OF NEW YORK.

Governor Whitman of New York has intimated (April 26) that he would sign the Whitney Committee bill and gives these reasons:

Because as district attorney of New York he had seen thousands of men and women

brought to a miserable end through the use of narcotics, and

Because, in his opinion, the bill is needed as a war measure and is designed as a co-operative measure to aid the government in regulating the control of habit-forming drugs, not alone in New York but elsewhere.

At a hearing granted by Governor Whitman there was present a large representation of physicians. Two general arguments were advanced, unconstitutionality of the law because it interfered with the professional relationship of physicians and patients and further because under the measure the control of the medical profession would be vested in a State body officered by laymen.

One point brought out strongly by several of the speakers was the charge that under the new law the criminal addict would be removed from the jurisdiction of the legal and police departments.

UNWARRANTED POSSESSION OF DRUG BY ANYONE IN MILITARY SERVICE CALLS FOR COURT-MARTIAL.

A drastic regulation designed to stamp out the drug evil in the United States army has been approved by the War Department as a part of a campaign to eradicate the habit-forming drugs.

By the order just issued it is provided that the possession of such a drug by any person subject to military law, unless ordered by a medical officer, will be considered prejudicial to military discipline, and the person so offending will be court-martialed for violation of the ninety-sixth article of war.

Examination of the men called in the draft has shown that an unexpected percentage are addicted to use of drugs in some form, and it is the purpose of the War Department to remedy this condition as rapidly as possible.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus.

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESSES SINCE MARCH 5, 1918.

HUBBARD, W. S.,

From 500 N. Commercial St., c/o Wm. R.

Warner, St. Louis, Mo.

To 113 W. 18th St., New York, N. Y.

SHARKANSKY, E. L.,

From 15 Rutland Square, Boston, Mass.

To Evacuation Hosp. No. 8, Camp Greenleaf,
Fort Oglethorpe, Ga.

GILBERT, C. T.

From 20 E. North Ave., Atlanta, Ga.

To Noroton, Conn.

ANDING, C. E.,

From Leakesville, Miss.

To Flora, Miss.

CARTER, F. L.,

From 38 Merrimac St., Boston, Mass.

To 1136 Old South Bldg., Boston, Mass.

STANISLAUS, I. V. S.,

From Philadelphia, Pa.

To Lock Haven, Pa.

PIGOTT, C. D.,

From Flowers, Miss.

To c/o Yellow Pine Pharmacy, Hattiesburg,
Miss.

GRAY, HAROLD,

From 537 E. 11th., Flat No. 2, Indianapolis,
Ind.

To 2813 Ruckle St., Indianapolis, Ind.

SPARKS, E. B.

From Baptist Memorial Hosp., Memphis,
Tenn.

To 804 Court St., Memphis, Tenn.

SMITH, H. A.,

From 3058 Ruckle St., Indianapolis, Ind.

To 3535 College Ave., Indianapolis, Ind.

- ARNER, BERTHA B.,
From 128 Fordham Drive, Buffalo, N. Y.
To 161 Beard Ave., Buffalo, N. Y.
- KOCH, ED. WM.,
From 2257 N. Illinois, Apt. No. 3, Indianapolis, Ind.
To c/o Univ. of Buffalo, Med. Dept., Buffalo, N. Y.
- MARTIN, A. E.,
From Residence Unknown.
To Officer's Training Camp, Chickamauga, Ga.
- WALL, H. F.,
From Residence Unknown.
To Mare Island, Cal., c/o Yard Dispensary
- FRENCH, L. H.,
From Residence Unknown.
To U. S. S. Baron de Kalb, c/o Postmaster, New York, N. Y.
- LINDH, BERGER,
From 3000 E. 79th St., Chicago, Ill.
To Co. 2, Ordinance Training Camp, Camp Hancock, Ga.
- MOLLET, C. E. F.,
From 412 Plymouth St., Missoula, Mont.
To 1311 Helen Ave., Missoula, Mont.
- McMULLIN, D. J.,
From Hosp. Steward, U. S. Navy, Pago, Pago, Tutuila, American Samoa.
To Ch. Pharm. Mate, U. S. Navy, Pago, Pago, Tutuila, American Samoa.
- ST. AMOUR, O.,
From Des Monts, Quebec.
To Ste. Agathe, Des Monts, Quebec.
- WELSH, J. B.,
From Paducah, Ky.
To St. Louis, Mo., c/o Paris Med. Co.
- MUELLER, N. R.,
From 459 Chemistry Bldg., Univ. of Wis., Madison, Wis.
To Princeton, Wis.
- STAFFA, A. E.,
From 116 Rogers Ave., San Antonio, Texas.
To 1940 E. Commerce St., San Antonio, Texas.
- STAM, D. F.,
From Easton, Md.
To Main St. & Belvidere Ave., Arlington, Md.
- STILL, C.,
From U. S. Quarantine, Gallops Island, Boston, Mass.
To U. S. Marine Hosp., Baltimore, Md.
- VITOUS, W. J.,
From Doly, Wash.
To Morton, Wash., c/o Morton Drug Co.
- WARREN, L. E.,
From 4525 N. Robey, Chicago, Ill.
To 3833 Flad Ave., St. Louis, Mo.
- DILL, CHAS. T.,
From 167 W. 143rd St., New York, N. Y.
To 204 W. 141st St., New York, N. Y.
- DARBAKER, L. K., DR.,
From 7021 Bennett St., Pittsburgh, Pa.
To 7025 Hamilton, Pittsburgh, Pa.
- DIMMITT, A.,
From 4th & Chestnut Sts., Louisville, Ky.
To Newman Drug Co., 4th & Chestnut St., Louisville, Ky.
- SCHAPPER, F. C.,
From 102 N. Clark St., Room 4, Chicago, Ill.
To 617 Arlington Pl., Chicago, Ill.
- FRIEDMAN, H.,
From Jersey City, N. J.
To 978 Union Ave., New York, N. Y.
- BEUKMA, C.,
From 2613 Bryan St., Dallas, Texas.
To 2704 Ross Ave., Dallas, Texas.
- SHEELY, ED. V.,
From 554 Vance Ave., Memphis, Tenn.
To Vance & Lauderdale, Memphis, Tenn.
- HAMNER, J. F.,
From Recruit Depot, Ft. McDowell, Cal.
To Residence Unknown.
- KIMBALL, C. O.,
From U. S. Navy Training Sta., Norfolk, Va.
To Residence Unknown.
- SCHULZ, E.,
From Regt. Hosp. 6th Cavalry, Marfa, Tex.
To Residence Unknown.
- GRONAU, A. P.,
From Great Lakes Naval Training Station, Hosp. School, Co. 1, Great Lakes, Ill.
To Residence Unknown.
- BALMERT, C. A.,
From 308 W. Lombard St., Baltimore, Md.
To Residence Unknown.
- LUDWIG, F.,
From Hosp. Steward, U. S. N., U. S. N. Training Station, Great Lakes, Ill.
To Residence Unknown.
- FORBINE, J. W.,
From 2435 Brown St., Omaha, Neb.
To Residence Unknown.
- BERKENKOTTER, G. F.,
From Hamill, S. D.
To Residence Unknown.

GUICE, J. L.,
From Millry, Ala.
To Residence Unknown.

DUMPHY, R. M.,
From U. S. S. Castine, Vera Cruz, Mexico.
To Residence Unknown.

IKAN, A. L.,
From 1200 Frankfort Ave., Philadelphia, Pa.
To Residence Unknown.

MONTGOMERY, M.,
From Manila, P. I.
To Residence Unknown.

BOOK NOTICES AND REVIEWS.

Principles of General Pharmacy and Chemistry, Parts I to VIII, 160 pp., by Charles T. P. Fennel, Ph.G., Phar.D., professor of Theoretical and Applied Chemistry in the Cincinnati College of Pharmacy, professor of Materia Medica in the Medical Department of the University of Cincinnati. The book is arranged for the student in pharmacy. The subjects are treated concisely, but sufficiently explicit for following the lecturer and to encourage further study.

There are quite a number of illustrations and the author has been successful in having

these bring out the essential points of the explanatory text. Nothing essentially new has been introduced but the author impresses the principles of his subject in a way that leads the student to think instead of memorizing facts.

Publications Received.

Bulletin of Purdue University, circular of information concerning the School of Pharmacy, illustrated.

The Lilly Scientific Bulletin, series 1, No. 9, Pharmacological studies of the Ipecac Alkaloids and some synthetic derivatives of cephaeline.

FIRST FORMAL FINDING BY FEDERAL TRADE COMMISSION AGAINST RESALE PRICE FIXING BY CONTRACT.

For a considerable time there has been a controversy throughout the country over the question of the right of manufacturers, wholesalers, etc., fixing resale prices at which their articles could be sold, and the right to maintain such resale prices has been contended for by them, and the question whether such right exists has been brought before the Federal Trade Commission numerous times.

Many hearings have been had, many complaints have been made, and much consideration has been given to the subject by that commission. Many business concerns have been refusing to sell to customers who would not agree to maintain the resale price fixed by the seller.

The Federal Trade Commission has just disposed of the first of these cases in which complaints have been issued, charging violations of law through fixing the resale price of articles, and an order to cease and desist from this practice has just been issued by it in the case of Chester Ken & Co., Inc., of Boston, manufacturers of proprietary medicines.

Attorneys for the company admitted that in the past the practices complained of had been in use. The order, the first in cases of this character, forbids the company to:

(a) Indicate to dealers the prices for which its proprietary or patent medicines shall be resold.

(b) Securing agreements from dealers to adhere to such prices.

(c) Refusing to sell to dealers who fail to adhere to such prices.

(d) Refusing to sell to dealers who fail to adhere to such prices upon the same terms as dealers who do so adhere.

(e) Furnishing any advantage to dealers who adhere to the resale prices, while refusing similar treatment to dealers who do not adhere to the prices.

This order of the commission follows the decision of the Supreme Court of the United States in the American Graphophone Company case lately decided by it.

Some of the most distinguished lawyers in the United States have appeared before the commission to argue this question, as well as many of the leading business concerns of the country, some of whom have insisted that the maintenance of resale prices was proper, and others who have contended that it was not. Almost all of the large department stores of the country have been heard in opposition to it.

JOURNAL OF THE

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*Deceased November 19, 1917.

WILLIAM PERRY PORTERFIELD

FARGO, NORTH DAKOTA

President, National Association of Boards of Pharmacy, 1917-1918



W. P. POTTER

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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WILLIAM PERRY PORTERFIELD.

W. P. Porterfield, president of the National Association of Boards of Pharmacy is a native of West Virginia. He was born at Martinsburg, December 20, 1856, and received his early education in the public schools of this city. In 1878, he graduated from the Philadelphia College of Pharmacy.

In 1882, Mr. Porterfield moved to Dakota, before the division of the territory and when the population was less than 150,000. He located in Fargo and here opened a drug store under the firm name of Fout and Porterfield. Eleven years ago he was appointed member of the North Dakota Board of Pharmacy. He was twice elected president of the State Pharmaceutical Association and has served on the Executive Committee of the N. A. B. P. for three years and at the Indianapolis meeting was elected president.

Mr. Porterfield is a farmer as well as pharmacist, and on an extensive scale, farming nearly two thousand acres. He is deeply interested in municipal and state affairs, has been a member of the Fargo Park Board for the last ten years, and State Senator for four years. He is director of one of Fargo's banks and is secretary of the Red Cross in his home city and Inspector of Explosives for the State of North Dakota.

E. G. E.

EDITORIAL

E. G. EBERLE, Editor

253 Bourse Bldg., PHILADELPHIA

THE INTERDEPENDENCE OF MEDICINE AND PHARMACY IN WINNING THE WAR.

THERE is a disposition among some army medical men, and others, to underestimate the importance of pharmacy, and yet they must admit that pharmaceutical skill and knowledge are significant in the treatment and surgical procedure for the rehabilitation of their patients. In civil practice some doctors prepare and dispense the medicines employed by them, but even then the constituents or finished preparations are made by pharmacists. Such practitioners assume privileges for which they are unwilling to grant druggists the reciprocity of counter-prescribing, and rightly so. Two wrongs never make a right.

In providing a reliable materia medica for the medical profession pharmacists perform a responsible and inherent duty. They are willing to work in their particular sphere of activity; they do not expect undeserved distinction, but they fail to appreciate why the degree of their importance should now be less, when the exigency for the kind of service they are qualified for is greater. Reason indicates to us that the functions of pharmacy have not changed, but simply have not been adapted to our military organization. Dr. Philander P. Claxton, U. S. Commissioner of Education, said in an address last month that the greatest danger to the Allies is not in the exhaustion of man power but the loss of technical and scientific men. Because there has been no provision in the Army for pharmacists, in the capacity for which training and education have qualified them, many have secured commissions in other departments of the Service, and thus the ranks of available pharmacists have to that extent been depleted. It is reasonable to assume that unless provision is made for them, those in the succeeding drafts will do likewise. It is admitted that if commissions are granted to pharmacists it will improve the general status of pharmacy, but surely this is desirable and in the interest of public health.

The devotion of medical men speaks for their splendid citizenship, but there is a serious doubt as to whether the Medical Department will be able to enroll a sufficient number of doctors for the needs of the growing army unless the services of pharmacists are utilized. Preparedness has attained to a higher valuation than formerly. Pharmacists desire to help in winning the war as loyal citizens and as participants in the best medical service possible for the men engaged in making the world a safer and better place to live in. They contend that organized pharmaceutical service is essential to the Medical Department of the U. S. Army because there is an interdependence between medicine and pharmacy. Even in

civil life this has not been strongly enough impressed nor fully appreciated by either profession. Pharmacists on the one hand realize that compelling necessity has added many non-pharmaceutical lines to the drug stocks, and this makes them reluctant in vigorously asserting their rights to professional recognition, notwithstanding that the services rendered by them are so determined by law and practice, the Government in its several departments and the medical profession by accepting of their products and standards. Physicians, on the other hand, are not fully responsive to the claims of pharmacy, chiefly because of the conditions in the average drug store; their perspective is the stock, whereas it should be the department and the service which is concerned with and contributes to the progress of medicine.

Development proceeds along the lines of least resistance, and hence the conditions of pharmacy are responsive to environments, but this should not inhibit coöperation of physicians and pharmacists in efforts which, if successful, will unquestionably redound to the advance and benefit of both professions. Medicine can only hope to continue its forward strides if pharmacy is progressive, and if the services of pharmacy are not most efficiently utilized now, when it seems almost imperative that they should be, both professions will suffer as a result, after the war. The future progress of medicine is largely dependent on that of professional pharmacy, and the sooner the interdependence and interrelation of these professions is recognized the better for them and for the public. Disparagement to the least of these will do damage and injury to both.

The armamentarium of the doctors has been made possible by pharmacists and is a prerequisite in the successful treatment of the sick and wounded. Pharmacists have, under trying conditions, solved the problems of drug production and supply; their suggestions in a number of important matters have been accepted and practically applied by the Government; they have loyally and patriotically given their money, time and places of business for carrying into effect the beginnings of several of the great preliminary promotions of the country; they have labored under difficulties to meet the demands for medicines; they have cheerfully accepted restrictive buying and selling orders; relatively more reports whereby they might be and are taxed were required of them. They are convinced by past military history and knowledge and the experience of other countries that properly organized pharmaceutical service is essential for the Medical Department of the U. S. Army.

There is a possibility of bringing pharmacy into more active and efficient coöperation with medicine for the common weal of the men in arms. Medical men can convert the possibility into achievement if they are sincerely desirous for the advancement of pharmacy. They have heretofore voiced their support; will they now more actively impress their views and aid in the endeavor to es-

establish an organized Pharmaceutical Corps as an integral part of the Medical Department of the U. S. Army? Thereby they will advance professional pharmacy—one of their often-expressed desires—and bring into more hearty accord the efforts of physicians and pharmacists in purposes for which they are united, but above all they will render an invaluable service to the soldiers and to the enlisted medical men.

E. G. E.

THE PREPAREDNESS OF PHARMACISTS FOR SERVING THEIR COUNTRY.

HERETOFORE references have been made to suggestions and resolutions offered by Branches of the American Pharmaceutical Association, which were of such value that they were subsequently embodied in related war measures.

On May 18, 1917, President Frederick J. Wulling, of the American Pharmaceutical Association, addressed His Excellency, President Wilson, as follows:

MR. PRESIDENT: As president of the American Pharmaceutical Association and with the concurrence of Mr. Lewis C. Hopp, Cleveland, Ohio, chairman of the Council of the Association, I hereby pledge the loyal support of the Association and tender to you and the Government such services as the Association can give in the present crisis of the country. Many of the members of the Association have already offered their individual services, but the Association may be able to give a service as an organization. It is ready and willing to help the country in any way it can and holds itself in readiness to be advised by you or by your orders.

President R. A. Lyman, of the American Conference of Pharmaceutical Faculties, addressed the President in a communication of May 1, 1917, wherein it was more specifically stated how this body could be helpful to the country. The letter reads:

MR. PRESIDENT: The Executive Committee of the American Conference of Pharmaceutical Faculties, representing forty leading Colleges of Pharmacy of the United States, has authorized me to inform you that the services of the schools belonging to this Conference are at your command. This organization wishes to render to the country any and every possible service. Some of the special services which these schools can render are suggested below:

1. The manufacture of pharmaceutical preparations, official or non-official, in such quantities as the Government needs.
2. The microscopical and chemical examination of purchases of crude drugs, for the purpose of identification, and the detection of adulterations.
3. The physiological and chemical standardization of medicinal products.
4. The manufacture of medicinal synthetics.
5. The chemical, microscopical and bacteriological examination of food-stuffs.
6. The supplying of crude medicinal plants, such as *Digitalis* and *Belladonna*, which are now on hand, or are now growing in our drug plant gardens. The latter will be available this fall.
7. The growing of crude drugs upon a larger scale than is now attempted and the supplying of information or trained men to those who wish to engage in the cultivation of medicinal plants.

Work along the lines indicated has been done for the Government on quite an extensive scale. Some of the schools offered their teaching and laboratory facilities and extended preparatory courses for those enlisting in the Hospital Service. The Department of Pharmacy of the Oregon Agricultural College directed the collection of native *Digitalis* by farmers.

At the April meeting of the New York Branch of the American Pharmaceutical Association, Dr. H. C. Lovis, as chairman of the Committee on Military Preparedness of the American Drug Manufacturers' Association, told of the work which has been done by that committee beginning on *February 4, 1916*, when resolutions were adopted by the Association as follows:

WHEREAS, The President of the United States has made an appeal to its citizens on behalf of military preparedness, and

WHEREAS, Adequate military preparedness involves not only the training of citizens as soldiers and the provision of ships, of arms, and of munitions, but also the organization of all the vast industries of the country with a view to their prompt and effective mobilization in case of war, and

WHEREAS, The provision of medical and surgical supplies promptly and in adequate quantities is a most important phase of such preparedness; therefore be it

Resolved, That in the opinion of the National Association of Manufacturers of Medicinal Products* definite plans for the mobilization of all private resources for the manufacturing and delivery of medical and surgical supplies for the Army and Navy of the United States in case of war should be formulated and promulgated at once by the Government; and be it further

Resolved, That the Members of the National Association of Manufacturers of Medicinal products hereby pledge their hearty coöperation in the formulation and promulgation of such plans of mobilization to the end that in the event of war the resources of the United States, for the preparation of medical and surgical supplies, could be made use of by the Government with the least possible delay, confusion and expense.

These and prior editorial comments and the symposium of the New York Branch of the American Pharmaceutical Association on "What the Drug Trade Has Done to Win the War" indicate the possibilities of pharmaceutical service, give an idea of what has been done by the allied interests and emphasize that pharmacists realize the importance of their work and have a vision of things necessary for winning the war that extends beyond the limits of their immediate activities. These same Interests are convinced that a Pharmaceutical Corps is necessary for the U. S. Army.

Write your Congressmen and persuade some of their other constituents, especially those of the medical profession, to do likewise. E. G. E.

* Now American Drug Manufacturers' Association.

MICROCHEMISTRY OF THE ALKALOIDS OF DATURA.*

BY CHARLES O. LEE.†

Atropine was discovered in roots of belladonna in 1831. As it occurs in commerce it usually contains some hyoscyamine. Atropine appears in the form of white auricular crystals or a more or less amorphous white powder. It is colorless but has a bitter, acrid taste, and gradually assumes a yellowish tint upon exposure to air. It is soluble at 15° C. in 130 parts of water, 3 parts of alcohol, 16 parts of ether, 4 parts of chloroform, 50 parts of glycerin and melts at 115° C., forming a colorless liquid. Atropine volatilizes above 115° C. and condenses into little colorless drops which will crystallize in contact with water, or by the addition of a crystal. Aqueous solutions of atropine are strongly alkaline and as a base atropine forms many soluble salts with acids, solutions of which decompose upon standing. For extemporaneous use, solutions of atropine sulphate may be heated to 100° C. with only a slight decomposition.

Chemical Properties.—Ladenberg who studied the mydriatic alkaloids found that the alkaloids atropine, hyoscyamine, and hyoscyne possess a common formula $C_{17}H_{23}NO_3$. Other authorities give hyoscyne the formula $C_{17}H_{23}NO_4$. It was found also that these three alkaloids formed salts with gold chloride with varying fusing points. The atropine gold salt fuses at 135° C. The hyoscyamine gold salt fuses at 160° C. and the hyoscyne gold salt fuses at 190° C.

Atropine is an ester and on hydrolysis yields a basic substance tropine, a pyridine compound, and optically inactive tropic acid, which is an aromatic acid. Hyoscyamine has been shown to be the ester of tropine with two tropic acids. Atropine therefore appears to be racemic hyoscyamine. Dextro hyoscyamine has also been prepared by the union of tropine with dextro-tropic acid.

Ladenberg obtained hyoscyamine from tropic acid and tropine as he did atropine, hence they must be isomers. In condensing the split products of hyoscyamine, atropine was obtained. Bauer⁵ states that atropine is optically inactive but that hyoscyamine is levo-rotatory. Merck saponified hyoscyamine with hot water and got tropine and levoactive tropic acid. This active tropic acid is converted into the inactive state by the action of an alkaline solution. The same will happen with hyoscyamine. If hyoscyamine is melted alone or with small amounts of an alkali it changes to atropine. The change of one isomer into another goes on in alcoholic solution, without interfering with contemporary reactions according to Gadamar. Tunmann² also states that hyoscyamine goes over into atropine during the process of extracting from plants.

In his further researches Ladenberg succeeded in converting the inactive tropic acid into the two optical isomers by the aid of quinine salts and with the

*Read by title, Scientific Section A. Ph. A., Indianapolis meeting, 1917. The article also included a classification of alkaloids, their occurrence, general properties and reactions, pharmacological action and therapeutic uses. These divisions are omitted with consent of the author.
—EDITOR.

† Purdue University School of Pharmacy, Lafayette, Ind.

synthesis of tropine; hyoscyamine may be made synthetically. Amenomiya got tropine from atropine and by treating tropine with 1-tropic acid he got 1-hyoscyamine. Bauer¹ considers atropine a tropine of tropic acid. Willstätter synthesized both tropine and atropine as successfully as tropic acid had been synthesized. In 1883 Ladenberg obtained atropine by condensing tropic acid and tropine in the presence of dilute hydrochloric acid, with a yield of 17.7 percent of the theoretical yield of levo- and dextro-hyoscyamine. The former is considered more active than the latter.

Molisch⁶ says that hyoscyamine resembles atropine very much and can be easily changed into atropine. He also considers that atropine forms the basis of the Solanaceous alkaloids, and is bicyclic and tertiary and of an alcoholic character. Tunmann suggests that hyoscyamine is the principal alkaloid of this group but goes over into atropine in the process of extraction.

The investigation of Willstätter showed that a similar ring system was at the base of the alkaloids of the tropan group. In 1863 Kraut first split atropine into tropine and tropic acid by boiling it with baryta water. This meant much regarding the constitution of atropine. This splitting of atropine is considered a saponification process in which atropine is considered the ester of tropine and tropic acid. From this the constitution of tropine and tropic acid can be obtained.

Gompel and Henri¹⁴ found that atropine has 3 absorption bands at (λ)—2645, 2580 and 2505, respectively, with general absorption, rapidly below 2493. The three bands are apparently those of the benzene ring replaced at about 30 units toward the red. The remaining benzene bands are marked by the strong absorption of the rest of the molecule. Five milligrammes may be detected in 10 mls of solution.

It has also been found that atropine and hyoscyamine, when treated with anhydrous agents, go over into atropamine and belladonnin, two probable stereoisomeric bases.

PLANTS OF THE SOLANACEAE.

This group of plants includes, *Atropa belladonna*, *Scopola carniolica*, *Hyoscyamus niger* and *Datura Stramonium*.

Alkaloidal Yield—Tunmann suggests that both soil and temperature conditions have a great deal to do with the alkaloidal content of this group of plants, and that there is only little difference in the alkaloidal yield of cultivated and wild plants. In the years 1907 to 1911 Burman obtained, respectively, 0.097, 0.082, 0.045, 0.046 and 0.099 percent of atropine from atropa grown in the same spot. These variations are supposedly due to climatic conditions which he considers affect the alkaloidal yield of plants markedly. It has been found that nitrogen has some relation to the formation of alkaloids in plants. Also tests have been made which show that temperature is a considerable factor and as the temperature increases the percentage of alkaloid decreases, and *vice versa*.

It has been shown that leaves exposed to the sun have somewhat more alkaloid than the shaded leaves. In other cases it is reported to be more abundant in the mesophyll of the leaf and in shaded parts of the plants and deeper tissues.

In cultivated plants of *Datura* the yield of alkaloid from fertilized soil was 0.342 percent, from the unfertilized soil 0.325 percent. Seeds of these plants yielded, respectively, 0.283 and 0.279 percent of alkaloid. Chevalier reports that the alkaloidal yield was increased by the use of nitrogenous fertilizer.

Feldhaus found in the seed of *Datura* 0.333 percent of alkaloid, in the root 0.1, in the leaves 0.39, in the stems 0.54, in the corolla 0.439, and in seedling 0.67 percent total alkaloids. In three-year cultivated plants of California, Sayre reports 0.519 percent total alkaloid. The leaves of these plants yielded 0.642 percent, younger stems 0.431 percent, older stems 0.167, roots up to 0.5 and seeds up to 0.8 percent.

The individual differences of the alkaloid yield of the *Daturas* is small, *Datura stramonium* yielding 0.46–0.55 percent as compared with *Datura tatula* yielding 0.47–0.63 percent.

Ciamician¹⁶ states that the alkaloidal content of *Datura* can be considerably increased by inoculation with such organic substances as pyridine tartrate, asparigin, dextrose, benzoic acid and quinol.

In *hyoscyamus* the alkaloidal yield is said to vary greatly, averaging in the fresh leaves about 0.15 percent and in the fresh seeds about 0.30 to 0.50 percent total alkaloids and a yield of hyoscyamine for 0.04 to 0.07 percent.

MICROCHEMISTRY OF THE SOLANACEOUS ALKALOIDS.

Localization.—*Atropa*, *Hyoscyamus* and *Datura* have been studied microchemically. In the main most of the microchemical studies agree.

The seeds have been most thoroughly investigated. Here the alkaloid is found in the storage tissue, the epidermis being alkaloid-free. Barth claims there are only traces of alkaloid in the endosperm and embryo of unripe seed.

Hyoscyamus was investigated thoroughly by Siim Jensen. He reports that alkaloid is found in the epidermis of the ovary, less in the parenchyma and placenta. In the calyx, the parenchyma next to the sieve tubes contains the alkaloid, in the corolla tube it is found in the parenchyma surrounding the vessels. In the leaf the alkaloid was found in the phloem parenchyma and in the mesophyll. In the stem it was found in the parenchyma, the sieve tubes, pith, cortex and wood. In the root the alkaloid was present in the cork layer, the phellogen, phelloderm, phloem parenchyma and pith rays.

In germinating seeds the alkaloid was found in the cotyledons, then in the stalk, the bases of the leaves, then in the entire plant. It appears greatest at flowering time and decreases thereafter.

Since the pith of the flower stalk is richest in alkaloid it is thought that its formation is not dependent upon light. This is contrary, however, to some other theories regarding the effect of light upon alkaloid formation.

Tröggelle states that the pollen is free from alkaloid and that the unripe seed is richer in alkaloid than the ripe seed. The pericarp decreases in alkaloid content during fruit formation and the endosperm and embryo are alkaloid-free. The alkaloids of seedlings arise through new formations. Von Anema and Clautriau, in working upon the seeds of *Atropa*, found the alkaloid between the integument and albumen but never in the albumen or the embryo.

The Solanaceous alkaloids offer good material for the study of the translocation of the alkaloids since they are not confined to any one part of the plant or to any particular tissue. It is thought, however, that they follow the conductive parenchyma. They are also found more abundant near wounded tissue which may strengthen the theory that alkaloids are not only destructive protein products but are also protective substances.

ATROPINE AND HYOSCYAMINE.

According to Putt¹⁸ there would be no necessity for tests for alkaloids other than color reactions if such reactions were always distinctive and satisfactory. In the first place, to get a good color reaction the alkaloid must be relatively pure. Again the amount of material required to perform a series of color tests is often many times greater than the entire available sample. Then, too, many colorations are due to the metallic nature of the reagent rather than to the alkaloid.

In microchemical tests with pure alkaloids Putt recommends the addition of $\frac{N}{10}$ hydrochloric acid before adding the reagent. If a precipitate fails use less reagent or more alkaloid. In all cases, except with iodine solution, use excess of the precipitant. If alkaloidal solutions are concentrated the precipitate is at first amorphous and forms crystals slowly, if dilute, crystals form at once.

REAGENTS.

- | | |
|--------------------------------------------------|---------------------------------------------------|
| 1. Tenth normal iodine solution. | 10. Mayer's reagent. |
| 2. Platinic chloride solution, 10%. | 11. Picric acid solution, 1%. |
| 3. Palladous chloride solution, 5%. | 12. Picrolonic acid solution, aqueous, saturated. |
| 4. Gold chloride solution, 1 : 20. | 13. Acid chlorine water solution. |
| 5. Iodinepotassium iodide solution, 1 : 1 : 200. | 14. Solution of hydriodic acid. |
| 6. Iodine solution, aqueous, saturated. | 15. Hydrogen peroxide. |
| 7. Uranium nitrate solution, neutral, 5%. | 16. Hydrochloric acid solution, 0.6 to 1%. |
| 8. Phosphomolybdic acid solution. | 17. Alcoholic solution 50-75% and 95%. |
| 9. Tannic acid solution, 10%. | |

REAGENTS AS REPORTED AND COLLECTED FROM MANY SOURCES.

- Atropine with $\frac{N}{10}$ Iodine solution first gives a field of minute red, oily globules, which soon form minute crystals of fairly uniform size, with a tendency to form small clusters.
- Atropine with platinic chloride gives an amorphous precipitate.
- Atropine with gold chloride forms a precipitate of yellow drops which crystallize upon standing. Behrens says this reaction has no value for microchemical analysis.
- Alkaloids with simple solution of iodine give a reaction which may be aided by the use of hydrogen peroxide. In this reaction iodoatropin is formed.
- Atropine with acid chlorine water or hydriodic acid solution gives a brownish precipitate which collects in oily drops, which form monoclinic prismatic crystals in 5 or 10 minutes with yellowish brown to straw-yellowish color. The hydrochloride crystals are 30-60 μ and sharply defined with extinction angle of 20° 30'. The hydroiodide crystals are less well formed prisms and are colorless to dark yellow.
- Atropine with tartaric, oxalic, citric, chromic, and sulphuric acids, crystallizes into short, rhomboid, irregular, six-cornered crystals. With acetic acid and nitric acid spear-like, arrow-pointed crystals develop, often forming oblique crosses. All these salts have a reddish brown coloring, and weak polarization. Of these the nitrates give the most conspicuous and well-formed crystals (Behrens).
- Atropine salts in neutral solution form a bluish precipitate with iodoplatinate.
- Atropine from alcohol crystallizes in needle-like crystals, often spear-like and in star-shaped rosettes.

9. Hyoscyamine will crystallize from alcohol in about the same manner as atropine.
10. Many alkaloids are precipitated by a neutral solution of uranium acetate, first as amorphous, then becoming crystalline. Such crystals are insoluble in alcohol and water (J. Alloy).
11. Atropine crystallizes from aqueous alcohol into prisms (Perkin and Kipping).
12. Section of *Atropa belladonna* to which a solution of iodine and potassium iodide has been added after a time gives starlike crystals with a metallic appearance (Molisch).
13. Atropine with solution of iodine and potassium iodide give dark violet-brown crystals with a double refraction but hard to see on account of dark color. Hyoscyamine gave a light brown crystal which showed a distinct double refraction (Feldhaus).
14. Alkaloids give distinctive crystals with saturated solution of picrolonic acid (Schmidt 25).
15. Alkaloids form yellow precipitate as alkaloidal picrates with picric acid.
16. Atropine with phosphomolybdic acid gives a yellowish precipitate (Tunmann).
17. Potassium mercuric iodide gives a whitish precipitate that is hard to see (Tunmann).
18. Bromine water gives small crystals or yellow amorphous lumps (Tunmann).
19. Sections of tissue treated with gold chloride or potassium mercuric iodide then washed with hydrogen sulphide solution, will give a black coloring of the alkaloidal cells (Barth).
20. Crystals of atropine sulphate, chromate, and nitrate are a dark brown color with a strong silvery gleam in reflected light (Behrens).
21. Sodium bicarbonate will not cause a precipitate of atropine from solution except upon long standing (Behrens).

MICROCHEMICAL TESTS UPON ATROPINE, HYOSCYAMINE AND UPON THE ALKALOIDS IN DATURA.

Microchemical tests were made upon atropine and hyoscyamine because they largely represent the alkaloids of the Solanaceae. *Datura* was selected as the plant for our studies because it contains the alkaloids desired and is easily obtained.

TESTS.

1. Atropine was found to crystallize from solution in absolute alcohol into fan-shaped, feathery-like crystals.
2. Atropine treated with a solution of iodine and potassium gave a precipitate with a yellowish color, which soon formed needle-like crystals (*a*—upon long standing only crystals of potassium iodide remained, *b*—the same test was made adding a little potassium nitrate solution but plate-like crystals formed indicative of the nitrate together with formation of starlike needles and feathery atropine crystals).
3. Atropine was treated with iodine and potassium iodide solution to which a little hydrogen peroxide had been added. Fan-like feathery crystals together with needle-like crystals in clusters appeared. The addition of hydrogen peroxide seemed to hasten the formation of crystals. Crystals of an entirely different kind resulted when the test was made without the alkaloid.
4. Atropine with HCl and gold chloride gave a precipitate of oily globules which, after a few moments, formed large feathery fan-like crystals, quite stable upon exposure to air.
5. Atropine with hydrochloric acid solution to which iodine potassium iodide was added formed a precipitate of reddish brown globules, which accumulated near the edge of the coverslip and after a few moments formed long, clear crystals and many in rosettes.
6. Hyoscyamine hydrochloride solution treated with iodine and potassium iodide formed a yellowish precipitate which at once formed pale yellow to brownish triangular-shaped crystals. A few were narrower and formed rosettes.
7. Hyoscyamine hydrochloride solution treated with gold chloride gave a yellowish precipitate of oily globules which, after a few moments, formed irregular plate-like crystals.
8. Sections of *Datura* with hydro-alcohol in many cases resulted in the formation of star-like and needle-like crystals as described for atropine. This test cannot be controlled sufficiently to confirm the crystals as atropine.
9. Section of *Datura* treated with gold chloride, iodine and potassium iodide, picric acid, uranium acetate, picrolonic acid gave negative results concerning the presence of alkaloids.

DISCUSSION.

In many of the reported tests for these alkaloids, the work has been done upon the alkaloids as groups. Many of the microchemical reactions are reported upon the basis of the pure alkaloid with no confirmation upon the same results by working with plant tissues. The fact that other plant products are precipitated with these reagents makes the detection of the presence of alkaloids in a cell very uncertain, unless confirmatory tests can be made.

In numerous tests upon sections of roots, stems and leaves of *Datura* we have been able to obtain crystals, corresponding to atropine or hyoscyamine, by treating the sections with hydrochloric solution. Our efforts to prove that such crystals were atropine by use of alkaloidal reagents failed to prove successful, and in each case the crystals found by use of hydro-alcohol were lost when iodine potassium iodide or any other of the reagents suggested was used, but in one or two cases were recovered by hydro-alcoholic solution though in lesser quantities. We believe this was due largely to the presence of much other material in the tissue that tends to take up or possibly disguise the alkaloidal precipitate which undoubtedly, if present, was only in minute quantities.

In our work further we found that atropine crystals were just as readily obtained from sections which had remained in water for 24 hours as from freshly cut sections. Behrens suggests that such tissue should not be allowed to remain in water.

Regarding the localization of these crystals which we termed atropine, they were usually found in the parenchyma cells. If they had any connection or relation to calcium oxalate crystals or cells containing calcium oxalate we were unable to detect it.

These crystals that formed upon treating the sections with hydro-alcohol were markedly distinct from any other crystals in the tissues. They appeared as needle-like crystals pointed at both ends usually; sometimes these appeared as sheaf-like. These crystals while quite regular varied in size in various sections.

CONCLUSIONS.

From our studies we are led to conclude:

1. That alkaloids free from vegetable tissue give microchemical reactions of a very characteristic nature with many of the alkaloidal reagents.
2. That alkaloidal reagents applied to plant tissues, precipitate substances other than alkaloids, making the detection of the presence of alkaloids very difficult.
3. That the reagents that form crystalline precipitates are more satisfactory than those forming amorphous precipitates.
4. That the application of reagents must be made with care, avoiding the use of excess amounts of same because a precipitate cannot be seen if the solution is too dilute.
5. (a) That the most successful reagent with plant tissues containing atropine is hydro-alcohol; (b) the best results with the pure alkaloids were obtained with alcohol, and solutions of gold chloride and iodine and potassium iodide.
6. That it is possible to determine alkaloid crystals in plant tissue by the use of the polarization microscope.

BIBLIOGRAPHY.

1. Feldhaus: "Quantitative untersuchung der Verteilung des alkaloides in den Organen *Dat. stramonium*."
2. Tunmann, Otto: "Pflanzenmikrochemie."
3. Encyclopedia Microchemical Technic.
4. Euler, H.: "Grundlagen und Ergebnisse der Pflanzenchemie."
5. Bauer, H.: "Der heutige Stand der Synthese von Pflanzenalkaloiden."
6. Molisch: "Mikrochemie der Pflanze."
7. May, Percy: "The Chemistry of Synthetic Drugs."
8. Behrens, H.: "Anleitung zur Mikrochemischen analyze wichtigsten Organischen Verbindungen." Vol. III.
9. Dohme: *A. J. P.* 1893, "The Relative Value of the Various Parts of the Plant *Datura stramonium*."
10. Winterstein: "Die Alkaloide."
11. Perkin and Kipping: "Organic Chemistry."
12. *Pharmaceutical Review*, reprint 1903.
13. Emich: "Lehrbuch der Mikrochemie."
14. M. Gompel and V. Henri: *Jour. Soc. Chem. Abst.* 1913, "Alkaloids of the Atropine Group; Qualitative Study of the Absorption of Ultra Radiation."
15. Mossler: *Apoth. Zeitung*, 28, 786, 1913.
16. Ciamician, G.: *Jour. Soc. Chem. Abst.*, 1913.
17. Frasier, T. R.: "Action of Atropine on Cold-Blooded Animals Compared to Action of Atropine on Mammals," *Roy. Soc. Edinburgh*, Vol. 25.
18. Putt, E. B.: "Microchemical Tests for Some of the Alkaloids," *Jour. Ind. & Eng. Chemistry*, 1912.
19. MacCallum, J. B.: "Action of Pilocarpin and Atropin on Flow of Urine," *Univ. of Calif. Pub.*
20. Bastedo: "Materia Medica, Pharmacology and Therapeutics."
21. Cushing: "Pharmacology and Therapeutics."
22. Haas & Hill: "Chemistry of Plant Products."
23. U. S. Pharmacopoeia. IX.
24. U. S. Dispensatory. XVIII.
25. Schmidt, J.: "The Alkaloids," *J. Biol. Chem.*, Vol. III, 1907.

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EUPATORIUM GLUTINOSUM LAM., AN ADULTERANT OF MATICO, N. F. (PIPER ANGUSTIFOLIUM RUIZ ET PAVON).*

BY CLARE OLIN EWING AND JOSEPH F. CLEVINGER.

NOTE.—During the course of the supervision of crude drug inspection, the Pharmacognosy Laboratory frequently examines new or unusual products, which are of such general interest that it seems advisable to make note of them from time to time. This is especially true at the present time when the unsettled war conditions have demoralized the ordinary channels of trade. With the resulting higher prices there has been a tendency toward increased substitution in the cases of crude drugs which are only obtainable with difficulty.

In the past, references to such products have been included in reports submitted to the American Pharmaceutical Association or the Association of Official Agricultural Chemists, or published by the Chief of the Bureau of Chemistry in his Annual Report, or as separate Press Notices or items appearing in the *Service and Regulatory Announcements* of the Bureau. It is now proposed to publish somewhat more detailed notes regarding adulterants, substitutes, or new products which appear of sufficient importance to justify more extended notice than can be accorded them in the brief reports of publications above referred to.—A. VIERHOEVER.

Among recent adulterations which have come to our attention is one which is especially noteworthy, because of the fact that it illustrates how errors may arise through application of unspecific common names to medicinal plants.

The material in question was offered for importation as "Matico Leaves," a

* Contribution from the Pharmacognosy Laboratory, Bureau of Chemistry, Department of Agriculture, Washington, D. C.

drug obtained from *Piper angustifolium* Ruiz et Pavon (family *Piperaceae*), a plant indigenous to Peru and Bolivia. Examination of the sample showed it to have been derived from another plant growing in the same regions, namely, *Eupatorium glutinosum* Lamarck,¹ a plant belonging to the family *Compositae*. Dragendorff² mentions it as one of the matico plants. Wijk³ refers to it as the "Matico of the Peruvians." The National Standard Dispensatory⁴ also states that among "other leaves to which the name (Matico) has been applied are those of *Eupatorium glutinosum* * * *"

At a first glance the leaves have an appearance somewhat resembling those of matico, due to the fact that both species have leaves scabrous and bullate on the upper surface, but comparison with authentic material readily discloses obvious differences. The leaves of *Eupatorium glutinosum* pack together in rather a gummy, spongy fashion, and are much less brittle than those of the recognized matico. The following tabulation shows the most striking characteristics wherein the sample differed from authentic matico:

| Matico. | Matico substitute. |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <i>Piper angustifolium</i> Ruiz et Pavon. | <i>Eupatorium glutinosum</i> Lam. |
| Leaves: | Leaves: |
| Alternate. | Opposite. |
| Margin finely crenulate. | Margin serrate. |
| Base unequal, oblique, subcordate. | Base cordate. |
| Venation palmate-pinnate, prominent below. | Venation pinnate. |
| Upper surface scabrous and finely bullate. | Upper surface scabrous and coarsely bullate. |
| Lower surface pubescent; simple hairs; glandular hairs absent. | Lower surface very wooly, due to numerous, long, simple, much twisted hairs; numerous short glandular hairs. |
| Subsessile or short-petiolate. | Petiole one to three cm. long. |
| Length ten to twenty cm. | Length five to fourteen cm. |
| Breadth two to five cm. | Breadth one to three cm. |
| Flowers: | Flowers: |
| Long spikes. | Cymose-paniculate composite heads. |
| Fruit: | Fruit: |
| Drupe, reddish brown; containing reddish brown and distinctly reticulate seeds. | Achene; five-angled, truncate; pappus of numerous capillary scabrous bristles. |

Inasmuch as we have been unable to find any data in the literature regarding the chemistry of *Eupatorium glutinosum*, the following data obtained with the meager material at our disposal may be of interest:

The amount of extract yielded to petroleum ether was about 14 percent. This is a large percentage for a leaf drug and, together with the large number of glandular hairs, affords an explanation of the manner in which the sample packed together.

While the presence of alkaloids has never been positively reported in any species of *Eupatorium*, Shamel⁵ reports some inconclusive tests for the presence

¹ *Encyclopédie Méthodique Botanique*, 11 (1876), 408.

² *Heilpflanzen* (1898), 9, 661.

³ *Dictionary of Plant Names*, 1911, 1, 521.

⁴ Hare, Caspari, Rusby: *National Standard Dispensatory*, 1916, 1007.

⁵ *American Chemical Journal*, Vol. 14 (1892), 224.

of an alkaloid in the related species *Eupatorium perfoliatum*. Tests for alkaloids made upon a 5 gramme sample of our material, using Wagner's and Mayer's reagents, gave negative results.

Tannins have been reported in a number of *Eupatorium* species and inasmuch as astringent and haemostatic properties are reported for the recognized matico, it was thought that the presence of tannin in the leaves of *Eupatorium glutinosum*, and their consequent use for similar purposes, might account for the term "Matico" having been applied to them. However, not more than a mere trace of tannin could be detected in an aqueous extract from 25 grammes of the powdered leaves.

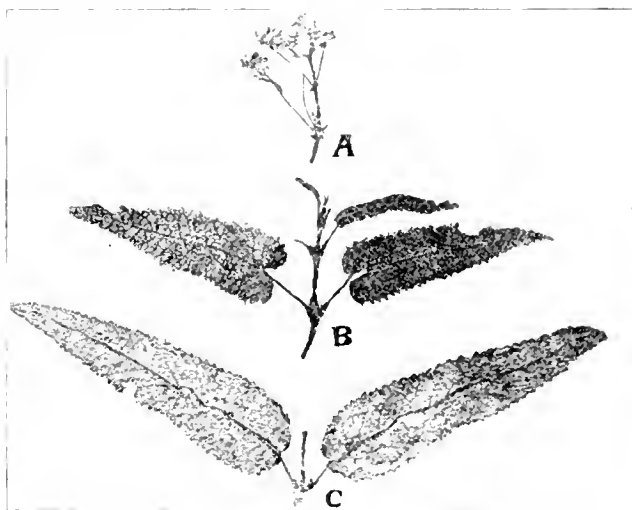


FIG. 1.—EUPATORIUM GLUTINOSUM LAM.

A. Inflorescence. B. Upper surface of leaves; C. Lower surface of leaves.

The taste and flavor of the leaves did not closely resemble those of the recognized matico. A steam distillation showed the presence of about 0.15 percent of a volatile oil resembling in odor that of boneset (*Eupatorium perfoliatum*) of the National Formulary IV (1916). When heated, the oil had a strong odor reminiscent of acetic and a higher fatty acid. It is of interest in this connection that Miller⁶ reports the presence of acetic and probably another higher fatty acid in the volatile oil of *Eupatorium capillifolium* (Lam.) Small. Unfortunately, the amount of material available was insufficient to obtain the amount of oil necessary for further work.

AN IMPROVED APPARATUS FOR TESTING THE ACTIVITY OF DRUGS ON THE ISOLATED UTERUS.*

BY PAUL S. PITTENGER.

The importance of biologic assay methods as a means of securing uniformity in the action of drug preparations not amenable to chemical standardization is just beginning to be fully appreciated. The incorporation of a chapter on "Bio-

⁶ "A Chemical Study of the Oils of Several Species of *Eupatorium*," E. R. Miller, University of Wisconsin, *Bull.* No. 693, p. 1-41 (1914).

* Read before the Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

logic Assays" in the present ninth edition of the U. S. P. is an epoch in the history of standardization and it is to be hoped that with this start a much wider publicity and experience will be gained so that the next Committee of Revision will readily be able to select from the proposed methods and make official the methods which prove to be the most satisfactory and convenient for each drug. Many methods used for the biologic standardization of drugs are not new but merely *quantitative* applications of methods used to elucidate the drugs' physiologic action. The principal task of the biologic chemist, therefore, is the selecting of the most suitable method for the particular drug under consideration.

Second in importance to the selection of the most suitable methods for this work is the *selection and improvement of the apparatus* employed. This is particularly true in experiments upon isolated organs where it is necessary to simulate the normal conditions within the animal from which the organ has been excised. Very often the importance of details of apparatus employed has been lost sight of and only too frequently have papers been written criticizing or condemning methods because concordant results could not be obtained when in fact the principal cause of the non-concordant results was not a faulty method but a *variation in the apparatus employed or in the inexperience of the operator*.

Frequently one operator will read an article on the assay of a particular drug or preparation in which the author of the paper gives detailed descriptions of the apparatus as well as the method employed and without going to the necessary expense and labor of duplicating the author's apparatus will carry out the test suggested on the nearest "thing" which happens to be in the laboratory. After a possible eight or ten experiments a marked variation is found in the results obtained and a paper is written criticizing the original method when in fact due to the difference in apparatus employed the experimenter has never really carried out the original method or performed enough experiments to become sufficiently experienced to pass an opinion upon the subject.

The above comments particularly apply to apparatus employed in making tests upon the isolated uterus. For example, the author in two different papers¹ as well as in his text-book on *Biochemic Drug Assay Methods* describes in detail and recommends an apparatus and method for making *quantitative* determinations of the action of drugs on the isolated uterus. These articles all state that the particular advantage of the apparatus described lies in the fact that the interference with the test produced by spontaneous contractions and increased sensitiveness of the uterus are practically overcome by replacing the Harvard light muscle lever, which was generally employed for recording uterine contractions, by an *escapement wheel and stylet* and the use of the *entire one horn* of the uterus in place of a segment; the free end of the uterus to be attached by means of a silk thread to one side of the wheel while from the other side is suspended a counterpoise bucket for holding shot. It was further explained that "By adding the proper amount of shot to this bucket the operator is enabled to weight the uterus down and thus reduce the amplitude of the spontaneous movements so they can

¹ "The Application of Some Muscular Tissues Adapted to Physiological Standardization" *Monthly Cyclopedic and Medical Bulletin*, Sept. 1913.

"A New Uterus-Contracting Method of Testing Ergot, with Comparison with the Blood-Pressure Method." *JOURNAL A. PH. A.*, July 1914.

be controlled. Thus, the marked spontaneous contractions can be reduced until the uterus is just able to contract under the increased load or, in other words, shot is added until the maximum amount of work that the uterus is normally capable of performing is counterbalanced. Any increase in the amplitude of the contraction after the addition of a given drug can now be produced only by that drug." It was also suggested that the uterus be suspended in a cylinder containing about 250 mils of Loche's solution.²

Several workers later claimed that Pituitary Extract could not be satisfactorily assayed by the uterine method because of marked spontaneous contractions present normally in many uteri and of the increased sensitiveness after a few doses of the drug. After an investigation the writer discovered that the authors of these criticisms had employed the "old style" isolated uterus apparatus consisting of a Harvard light muscle lever and a muscle warmer of about 40 mil capacity when the link between success and failure in carrying out *quantitative* tests upon the isolated uterus lies in the use of an *escapement wheel and bucket* for shot and the suspension of the entire one horn of the uterus in a relatively large quantity of Loche's solution preferably about 250 mils.

The above comments are made before describing the apparatus which forms the subject of this paper in order to bring out the point that in biologic assays where the most accurate *quantitative* results are desired it is just as essential to pay attention to details and strive to improve the apparatus as it is to improve the methods themselves. The form of apparatus recommended for a particular test is as much a part of the method as the animal employed.

Fortunately, in the majority of cases the foregoing statements do not apply to workers who have given the subject serious thought and have devoted a considerable amount of time to practical experimental and research work, in an endeavor to improve and determine the limitations of the various methods proposed, but to those who devote practically all of their time to allied subjects and merely dabble in biologic standardization.

The former all agree that wonderful strides have been made within the last few years and that the value of physiologic standardization as a means of securing *uniformity* in the strength of drugs and their preparations can not be over-estimated. The importance of this work is admirably set forth by Vanderkleed³ in the following words:

"Is it after all so necessary, so important, that preparations of digitalis, ergot, pituitary, etc., be standardized? In answer to that I would only say that we must all agree that it is the duty of our profession to render the best service to humanity of which we are capable. Now if we did not know that preparations of potent drugs like digitalis, strophanthus, ergot, etc., vary hundreds of percent in activity, when prepared indiscriminately and without physiologic control, we might be justified in continuing to market such variable products with the hope that after all the physician will be able to feel his way—and in many cases succeed in hitting the bull's eye, even with the handicap of poor weapons. But now that, thanks to pharmacodynamic investigation, we do know that digitalis tinctures or ergot fluidextracts may, and often do, without such control, vary

² "Biochemic Drug Assay Methods," pages 73 to 82.

³ "Physiologically Standardized Pharmaceuticals," by C. E. Vanderkleed, read before Ohio Pharmaceutical Association, July 1916.

all the way from practical inactivity to several times the normal strength, I personally feel that I could never conscientiously send out any such preparations unless I knew it had been physiologically tested and standardized."

It is gratifying to note that practically all objections made to physiologic assay methods are of the same general order, *i. e.*:

"Is the sample of drug that has been found to possess the greatest power to kill a cat the one that will prove the most efficient in curing a man?"

"Is the physiologic effect of the drug that is measured the one that gives it its therapeutic value?"

"The result of the assay depends upon *toxic* effects."

"The animal chosen is biologically much different than man."

"How can we calculate from the amount of drug necessary to produce a certain effect upon a dog how much will be required to produce the same effect upon man?"

The above questions clearly indicate a lack of conception on the part of these critics of the real purpose of the physiologic test, namely, to secure *uniformity*. The determination of the real value of a drug in the treatment of disease in man is another matter entirely. It is not the object of Biologic Standardization to attempt to show from the effect of a certain drug upon the cat how it will act upon man; or to calculate from the amount of drug necessary to produce a certain effect upon the dog how much will be required to produce the same effect upon man; or from the amount necessary to kill a guinea-pig how much will kill a man. These are all questions which concern the experimental physiologist and not the physiologic assayist except indirectly. Biologic assays are recommended in the U. S. P. IX only for drugs of *well-known physiologic effect and therapeutic efficiency*. It is not the object, therefore, to attempt from the results of our experiments on cats or dogs to tell the practitioner how these drugs will act on man because he knows the effects of these drugs from the results of thousands of clinical tests *on man*. Neither is it the intent to tell the practitioner how much tincture of digitalis, for example, will be required to produce a certain effect on man from the amount which produces the same effect on frogs or guinea-pigs because the practitioner's experience has taught him the proper dosage of these well-known drugs. As before stated, the sole object of biologic assaying is to devise and perfect methods whereby it is possible to produce *uniform* preparations. Therefore, if we always adjust a preparation to the same strength upon the same animal it will always produce the same effect upon man regardless of the relation between the two. Obviously, however, some more or less definite ratio must be shown to exist between the result obtained from the physiologic test and the therapeutic activity of the preparation, but to claim that because a frog is not comparable to a man, it should not be employed in physiologic testing, is as illogical as to deny that a chemical assay is of value because a chemical balance and a set of weights are not related to the human circulatory system.

To return to the subject of the paper, the author in his text-book and two papers previously mentioned describes in detail an apparatus and method for testing the activity of drugs upon the isolated uterus. A brief description of this apparatus follows:

The uterus is suspended in about 250 mls of Loche's solution contained in a cylindrical glass vessel (*G*) (Figure 1), the lower end of which is plugged with a rubber stopper (*O*) having a central bore. Through the latter passes one arm of a

wide glass "T" tube (*I*) which ends flush with the upper surface of the stopper, so that the cylindrical vessel may be completely emptied. This tube passes through a second rubber stopper (*L*) which fills an opening in the bottom of an outer metallic vessel (*F*) which forms a constant temperature water jacket.

The temperature of the water in the jacket is kept constant by means of a metallic rod (*E*) which penetrates the wall of the jacket, passes through the water, and is soldered to the opposite side of the jacket. The portion of the rod external to the jacket is heated by a protected Bunsen burner (*C*) which slides on the rod. The temperature is regulated by sliding this burner backward and forward until that point is reached where the amount of heat transmitted by the rod to the water inside is sufficient to keep the thermometer (*T*) suspended in the water at the proper degree (38° to 39° C.).

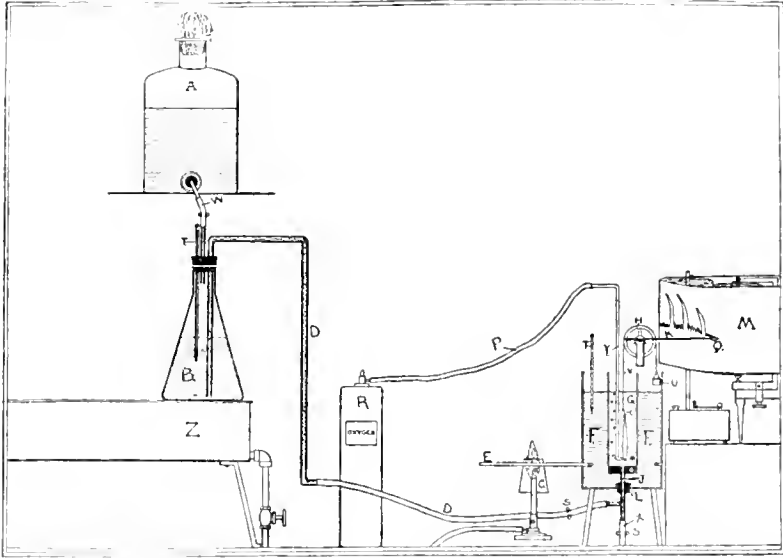


FIGURE 1. —A graphic drawing of the original apparatus and will serve to illustrate the description given in text. —From Pittenger's "Biochemic Drug Assay Methods."

One of the other arms of the "T" tube is connected by a rubber junction (*X*) armed with spring clamps (*S*) to a waste pipe by which the cylindrical glass vessel may be emptied.

The remaining arm is connected by a syphon tube (*P*) to a flask (*B*) which holds a small amount of Loche's solution for refilling the cylindrical vessel. This flask is kept at a temperature between 40° and 45° C. by means of a steam bath (*Z*). The main supply of Loche's solution is contained in a large aspirator bottle (*A*) connected with the small flask by a rubber tube (*H*), the object being to avoid exposing the reserved solution to prolonged heat. Heat causes Loche's solution to gradually decompose and lose CO_2 .

The Loche's solution in the small flask should be reduced to 39° C. immediately before admitting it to the cylindrical vessel by allowing sufficient cold solution to run into it from the aspirator bottle.

Into the cylindrical vessel containing the Loche's solution dips a narrow glass tube (*Y*). This tube is turned at right angles about half an inch from its lower end. Into this is sealed a platinum pin (*N*) for attaching the *lower end of the isolated uterus*. The upper end of this tube is connected by means of rubber tubing (*P*) to an oxygen reservoir (*R*). A constant stream of oxygen is allowed to bubble through a small vent at the lower end of the tube, thus preserving the muscular irritability of the uterus and at the same time stirring the Loche's solution.

The other end of the uterus is fastened to a small platinum hook (*I*) connected to a silk thread (*V*) which passes over an escapement wheel (*H*) and is attached to a pin on the opposite side of the wheel. A counterpoise bucket for holding shot (*U*) is attached to the opposite side of the wheel. To this wheel is soldered a stylet of aluminum (*K*), the axle of the wheel serving as a fulcrum. To the end of this stylet a pen point is fixed (*Q*) for recording the contractions of the uterus on the revolving drum of the kymograph.

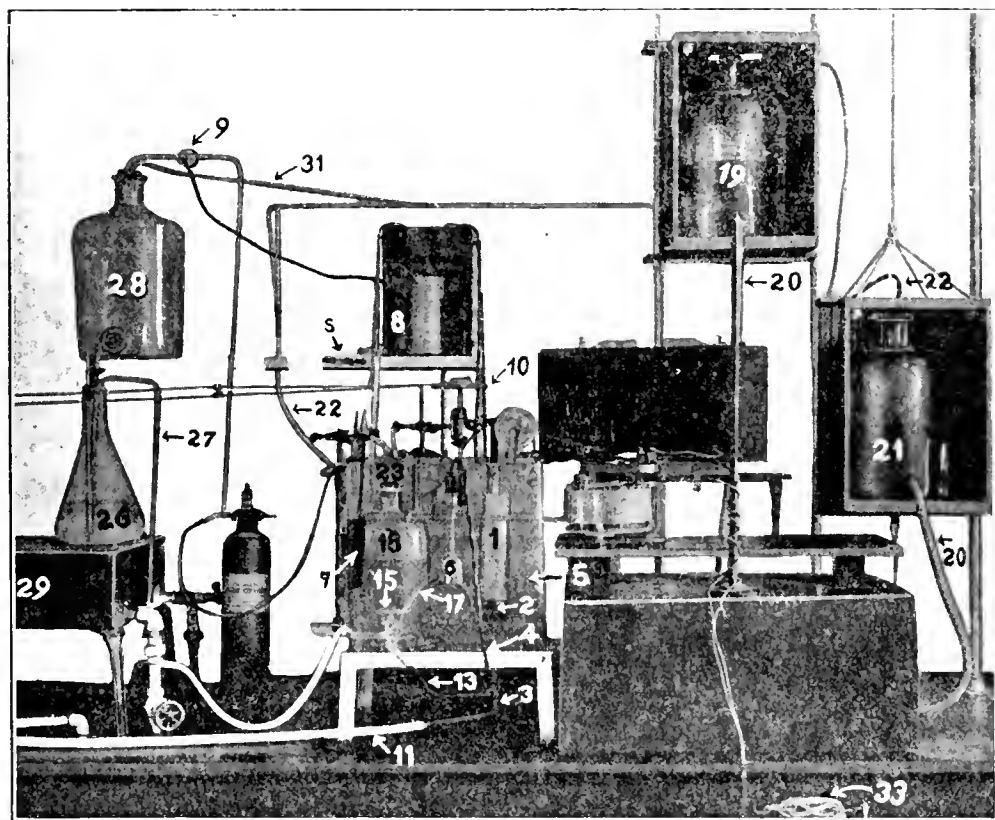


FIGURE 2.—Improved apparatus for testing the activity of drugs upon the isolated uterus.

This apparatus was in continuous use in the laboratory for two and a half years and gave very satisfactory results in testing Ergot and Pituitary Extracts. During this time, however, its limitations were carefully studied with the result that several details were noted in which marked improvements could be made.

First. The uterus was subjected to more or less shock at times due to the fact that it was impossible to always have the temperature of the Loche's solution in *B* at exactly 38° C. the instant it was necessary to use the same for refilling *G*. It was thought advisable, therefore, to make the constant temperature bath *F* of sufficient capacity to accommodate the bottle containing the warm Loche's solution for refilling *G*. With this stock solution in the same water bath as the cylinder containing the uterus it must necessarily be of the same temperature and thus produce no shock to the uterus when the drugged solution is run off and fresh solution run in.

Second. The metal tank was replaced by glass which enables the operator to observe to a better advantage the rate at which the oxygen is flowing, the amount of solution in stock bottle and the temperature of the bath.

Third. The brass rod and bunsen burner for heating the water in bath was replaced by an electric immersion heater, the temperature of the water being automatically regulated by means of a toluol-mercury thermostat or an Eberbach Bimetallic electric thermo-regulator.

Fourth. The escapement wheel was improved so that the writing point can be raised or lowered without destroying the tension on the uterus or changing the clamps on the stand.

Fifth. An elevator was added to accommodate two aspirator bottles of water for furnishing air pressure to force the Loche's solution from the stock bottle into the cylinder containing the uterus.

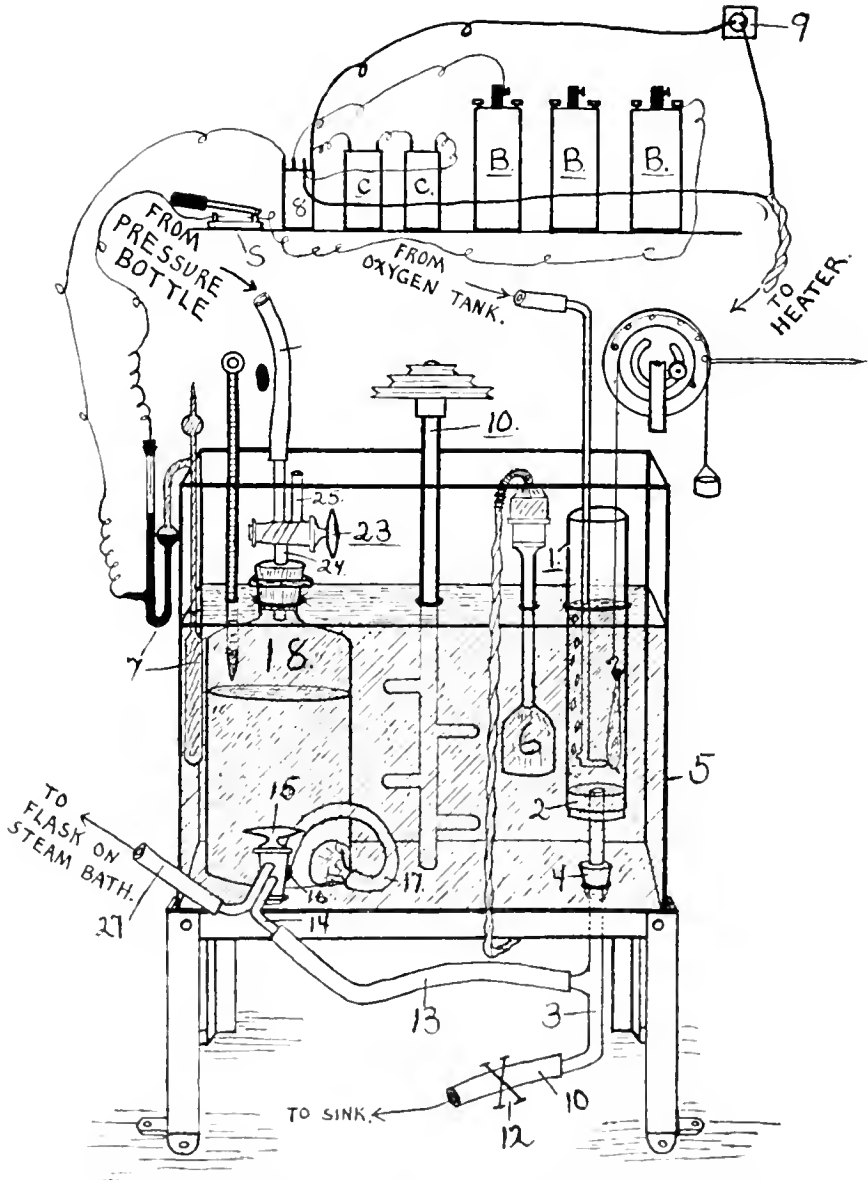


FIGURE 3.—Graphic drawing showing the arrangement of apparatus within the constant temperature bath and method of connecting batteries (B), condensers (C) and relay (S) with the thermo regulator (7) and heater (H).

The complete improved apparatus is shown in Figure 2. Figure 3 is a graphic drawing showing the arrangement of the stock bottle, thermostat, heater, cylin-

dricul vessel and stirrer, within the constant temperature bath. The labeling of corresponding parts is the same in both figures and will serve to illustrate the following detailed description:

The uterus is suspended in about 250 mils of Loche's solution contained in a cylindrical vessel (1), the lower end of which is plugged with a rubber stopper (2) having a central bore. Through the latter passes one arm of a wide glass "T" tube (3) which ends flush with the upper surface of the stopper, so that the cylindrical vessel may be completely emptied. This tube passes through a second rubber stopper (4) which fills an opening in the bottom of the outer glass vessel (5) which, when filled with water, forms a constant temperature water bath.

The water in the bath is heated by means of a "Universal" electric immersion heater (6). The temperature of the water is automatically kept at 38° C. by means of a toluol-mercury regulator (7) which makes and breaks the circuit from the batteries (B) to the relay (8) which in turn makes and breaks the electric current (110 or 220 volt) from plug (9) to the heater. The heat is evenly distributed throughout the water by the stirrer (10) which is driven by a small water or electric motor. The condensers (C) are used to prevent sparking when the relay (8) makes and breaks the electric current and thus prevents the contacts from burning off. For a 110-volt circuit only one condenser is necessary.

One of the other arms of the "T" tube is connected by a rubber junction (11) armed with a spring clamp (12) to a waste pipe by which the cylindrical glass vessel may be emptied.

The remaining arm is connected by rubber tubing (13) to one branch (14) of a "3-way" stopcock (15). One of the other branches of the stopcock passes through a rubber stopper (16) which fills an opening in the side of the glass water jacket. The end of this branch projects on the inside of the water jacket and is connected by means of a rubber tube (17) to the outlet of aspirator bottle (18) which contains unmedicated Loche's solution. Therefore, when the stopcock is turned to the proper position the unmedicated solution from the aspirator bottle (18) is forced through the connections just described by air pressure into the cylindrical vessel (1) containing the uterus.

The air pressure is supplied by allowing water to flow from an elevated aspirator bottle (19) through rubber tubing (20) into lower aspirator bottle (21). The air thus compressed above the liquid in the lower aspirator bottle is lead by means of pressure tubing (22) to the one branch of a "3-way" stopcock (23). One of the other arms of the stopcock (24) passes through a rubber stopper which tightly fits into the neck of the aspirator bottle (18) containing the Loche's solution. The remaining arm (25) of stopcock (23) permits air to escape when aspirator bottle (18) is refilled from flask (26) on steam-bath by means of siphon tube (27).

It will be noted, therefore, that when stopcocks numbers (15) and (23) are turned to the proper position the air pressure passes through stopcock (23) and forces Loche's solution from bottle (18) through tubing (17), stopcock (15) and tubing (13) to cylindrical glass vessel (1) containing the uterus. When the two stopcocks are turned in the opposite direction the Loche's solution in flask (26) siphons through tubing (27), stopcock (15) and tubing (17) and refills bottle (18) while the air in (18) escapes through stopcock (23).

The flask on the steam bath (29) is kept at a temperature between 40 and 45° C. A supply of Loche's solution is kept in the large aspirator bottle (28) connected with the flask by a rubber tube armed with a screw clamp, the object being to avoid exposing the reserved solution to prolonged heat. The Loche's solution in the flask is reduced to approximately 39° C. before siphoning into bottle (18) where the water bath adjusts it to exactly 39° C.

The neck of the large aspirator bottle is closed by a tight-fitting rubber stopper, through which pass two glass tubes. The one tube (30) is connected with a 20,000 mil bottle underneath the table which contains the reserve sterile Loche's

solution while the other (31) is connected with a water vacuum pump. Thus, by merely turning on the water to the pump the large aspirator bottle (28) is refilled with the sterile solution from the reserve bottle underneath the table without exposing the same to the air.

The method of suspending the uterus, supplying the oxygen and recording the contraction, are the same as with the original apparatus (see page 515) except that a marked improvement has been made in the construction of the escapement wheel.

It often happens that after suspending a uterus in the oxygenated Locke's solution it will relax to a greater extent than was expected by the operator and the writing point will fall below the smoked paper. Occasionally a uterus will make apparently normal contractions and react readily to the drug, but after two or three doses will suddenly relax to a much greater extent and establish a new normal far below the original. It is not convenient to lower the paper on the double drum kymograph to bring the writing point into proper position.

In the above cases it was necessary, therefore, with the original apparatus, to either shorten the thread which attaches the uterus to the wheel or to lower the tube to which the lower end of the uterus is attached. Both of these methods destroy the tension on the uterus and spoil the tracing.

The wheel on the improved apparatus consists of two parts (*A* and *B*, Figure 4). (*A*) is soldered to the axle while (*B*) is free and may be rotated independent of the axle. The stylet and writing pen are also soldered to (*A*). In (*B*) there is a

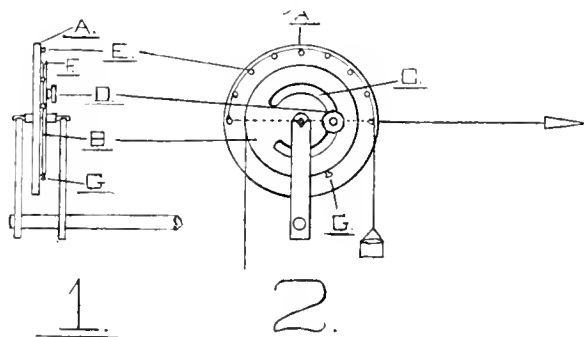


FIGURE 4.—Shows the construction of the improved escapement wheel. 1. Side view. 2. Front view.

crenate-shaped perforation (*C*) through which passes a small rod. The one end of this rod is soldered to (*A*) while the other end is threaded and supplied with a thumb nut (*D*) which when tightened acts as a set screw and holds *B* in any desired position. *A* is also supplied with a series of small pegs (*E*) which support the thread holding the bucket for shot. The rim of (*B*) contains a small groove (*F*) in which the thread from the uterus passes around the wheel. The end of this thread is fastened to a small peg (*G*).

This construction makes it possible, by simply loosening the thumb screw and holding (*B*), to rotate (*A*) and thus raise or lower the writing pen without moving (*B*) or disturbing the tension on the uterus. After adjusting the pen to the desired position the thumb screw is tightened and the wheel again acts as if it were constructed of but one piece.

Figure 5 shows the construction of the toluol-mercury thermostat. That portion of the glass tube which is lightly shaded represents toluol (*I*) and the black

portion (2) represents mercury. The platinum point of battery wire (6) is so arranged that it may be raised or lowered through stopper (9) and is connected directly with the zinc pole of the dry batteries. The platinum end of battery wire (5) is constantly in contact with the mercury and the other end is connected to one "battery pole" of the relay. The other "battery pole" of the relay is connected with the carbon pole of the batteries thus completing the circuit when the relay is closed. The relay must be of the type which breaks a contact when the battery circuit is closed by the thermostat and makes the contact when the battery is broken. The switch (S) in Figure 3 is to disconnect thermostat when not in use in order to save batteries.

In order to adjust the thermostat so that it will throw the relay at a given temperature, say, for example, 39°C. , it is only necessary to place the bulb (1) in the water bath, bring the temperature of the water to exactly 39°C. and adjust battery wire (6) so that it merely touches the surface of the mercury. After connecting with the relay, condensers and batteries, this apparatus will then automatically keep the water in the bath at a uniform temperature of 38.5 to 39°C. as follows:

Arrange the apparatus as shown in Figure 3; regulate thermostat as already outlined under Figure 5; start stirrer (10); close switch (S) and insert plug (9) in socket.

The heater produces a gradual increase in the temperature of the water which causes the toluol in the thermostat to expand and the mercury to rise. When the temperature of the water reaches exactly 39°C. the mercury touches the platinum point of wire (6), which completes the battery circuit and allows the current from the batteries to run through the coil of the relay, thus forming an electro magnet which lifts the armature of the relay and in turn breaks the contact which stops the strong current from passing to the heater from socket (9).

With the gradual lowering of the temperature of the water the Toluol contracts and causes the mercury to fall away from the platinum wire (6), thus breaking the battery current which is passing through the relay. This break allows the armature of the relay to fall away from the magnet and make the contact which allows the strong current to again pass from the socket to the heater. The heater gradually increases the temperature of the water until at 22°C. the mercury in the thermostat again makes a contact and the whole operation repeats itself. The toluol-mercury regulator, relay and batteries may be replaced, if desired, by an Eberbach bimetallic electric thermo-regulator.

The aspirator bottles (19 and 21) for furnishing air pressure are of eight-liter capacity and are placed in the small boxes which form the carriages of the elevator which may be raised or lowered by means of a rope passing over pulleys

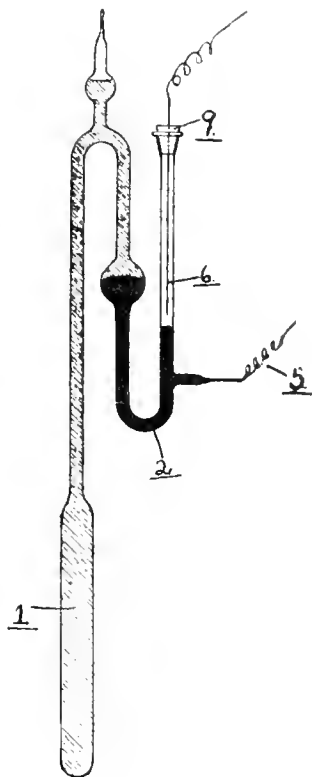


FIGURE 5

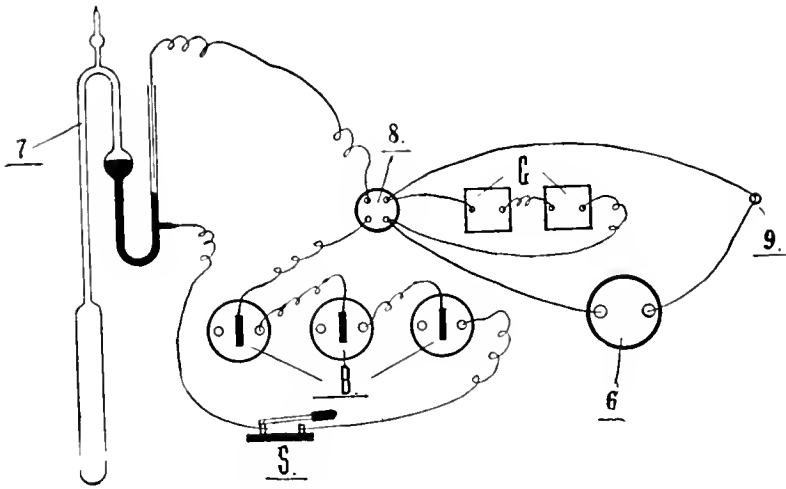


FIGURE 6.—Shows method of connecting thermostat (7); relay (8); condensers (C); batteries (B); switch (S) and heater (6) with the electric plug (9)

underneath the table to an awning cleat (Figure 2, 33) which serves to hold the elevators at any desired position. The method of connecting these bottles and carrying the air pressure to the small aspirator bottle in the water bath is shown by Figure 7.

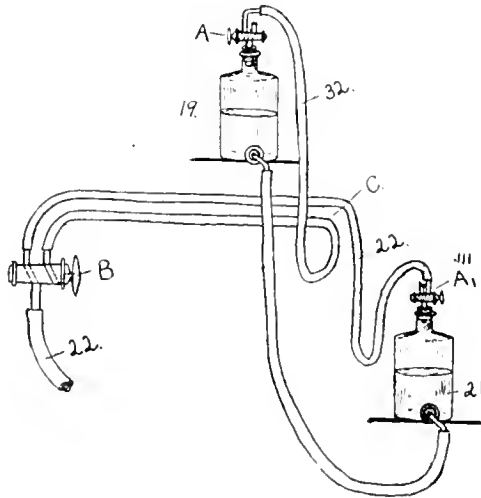


FIGURE 7.—Shows method of connecting aspirator bottles for making air pressure.

It will be noted that each bottle is closed by a rubber stopper containing two holes. One hole of each stopper is fitted with a glass stopcock (A and A-1) while through the other hole of each stopper passes a glass tube which in turn is attached to rubber pressure tubing (22 and 32) leading to two arms of a "three-way" stopcock (B). The other arm of the stopcock is connected by pressure tubing (Figs. 2, 3 and 7, 22) with the small aspirator bottle in the water bath.

The pressure tubes (22) and (32) are fastened to the wall at a point (C) midway between the upper and lower bottle and are of sufficient length to permit the free movement of the bottles from the upper to the lower position.

With the above arrangement the stoppers may be "wired in" and when all the water has passed from the upper to the lower bottle it is only necessary to reverse the position of the two bottles and the three stopcocks. The stopcock in the upper bottle should be open and the one in the lower bottle should be closed. The "three-way" cock should be turned so that the tubing (22) is in direct connection with the air pressure in the lower bottle. With the old method in which the neck of the lower bottle alone is supplied with a stopper and tubing it was necessary to change the stopper and tubing from one bottle to the other each time the positions of the bottles were reversed.

In conclusion, I would state that when an *escapement wheel and counterpoise bucket*, as described in Figure 4, is employed and the *entire one horn* of the uterus is used much more active quantitative results are obtained than when only a slender segment is taken and attached to a light heart lever.

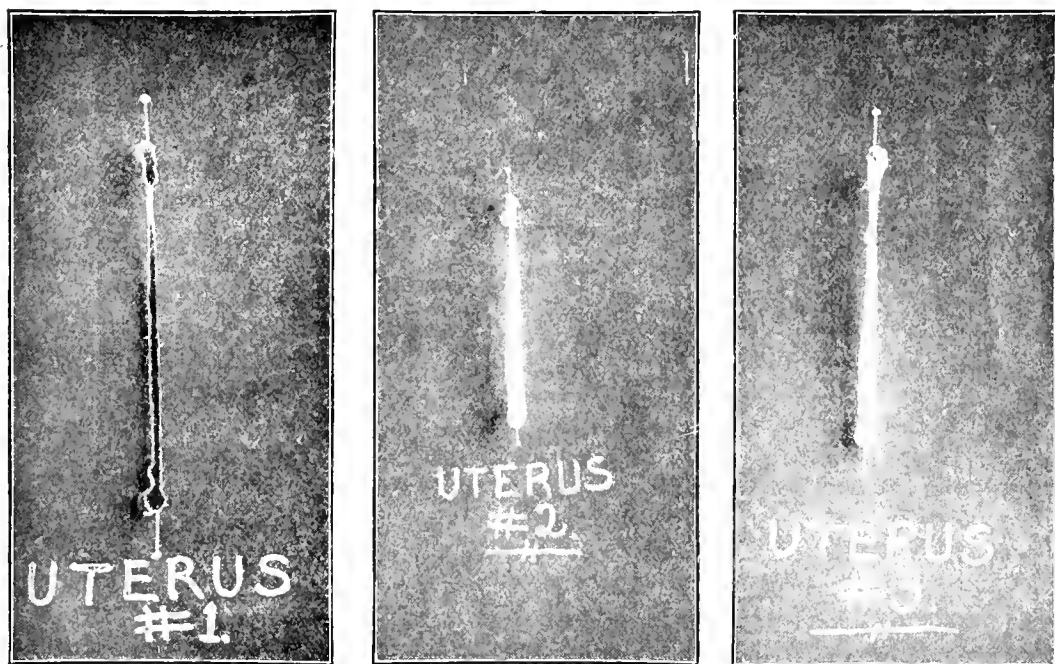


FIGURE 8.—Illustrates the variation in muscular structure in different uteri. The above uteri were all taken from guinea pigs weighing from 280 to 320 grams.—From Pittenger's "Biochemie Drug Assay Methods."

Only sensitive uteri, however, should be employed as different uteri vary greatly in their mutual relation and to power and muscular structure (see Figure 8). Some specimens are greatly deficient in muscular substance and act feebly while other specimens show greater muscular development and contract strongly. Some specimens prove absolutely inert and will not respond at all. The normal activity, however, practically runs parallel with the amount of muscular tissue present; the "stringy" uteri like No. 1 (Figure 8) are all deficient in normal ac-

tivity and in response to stimuli, while the thick, more muscular uteri are practically all active and sensitive. This knowledge enables the operator to save considerable amounts of time, as it renders it possible for him to distinguish between active and inactive uteri before connecting them with the apparatus.

PHARMACODYNAMIC LABORATORY,

H. K. MULFORD COMPANY,

AUGUST 1, 1917.

WATER DROPS AND WATER DROPLETS.

BY A. B. LYONS.

There has been much discussion regarding a standard dropper for accurate measuring of small quantities of fluid. It has been shown that the size of the drop depends—other things being equal—on the diameter of the delivery tube at its orifice, and that when that diameter is 3 millimeters the dropper will deliver at standard temperature 20 drops of distilled water to the mil.

Obviously the usefulness of such a dropper would be very limited, since for different liquids, including aqueous solutions of different substances, the count of the drops per mil varies greatly. We have indeed occasion often in the laboratory to measure small quantities of a liquid by drops, but for such purpose we use an ordinary pipette, ascertaining by experiment how many drops per mil it will deliver of the particular liquid we propose to measure with it. Even so, we make our measurement only from the middle third of the pipette, or from the enlarged portion of the same.

In the use of such extemporized standard droppers we have been accustomed to keep in mind the effect of temperature on the size of the drops, using them only at temperatures not more than 5 degrees centigrade above or below that at which the dropper was standardized. Inasmuch, however, as the quantities measured in this way are never large, the effect of temperature, even in cases where the coefficient of expansion is large, is almost negligible as long as measurements are made at room temperature.

There is, on the other hand, an important possible cause of variation in the size of drops delivered from a pipette or dropper which has been very generally overlooked. This is *the character of the atmosphere in which the drop is formed*. The important factors governing the size (*i. e.*, the weight) of the drop are the surface tension of the fluid and the attraction between the fluid and the surface with which it is in contact. The first of these factors may be influenced enormously by the presence in the atmosphere of certain gases or vapors.

A few simple experiments will illustrate. Deliver into an empty flask from a pipette a certain volume of water, measured by the interval between two fixed lines on the pipette, counting the drops. Now put into the flask a little ether and repeat the count. The number of drops will be more than twice as great as in the first experiment. If the flask contains some strong alcohol the number of drops will be 25 or 30 percent greater than when it is empty, or contains only water. You are no longer getting standard drops, although the pipette is delivering the same fluid as before—contaminated at most with no more than a trace

of foreign substance. You may call them droplets if you choose, but as units of measure they have ceased to have value.

It is not necessary to go into detail, showing precisely how much variation is occasioned by this or that particular vapor. Little or no practical use could be made of such data. The important thing is to keep in mind the possibility of such disturbing influences in any use made of the dropper for exact measurements.

HYDROGENATED OILS AS FUTURE OINTMENT VEHICLES.*

BY ERNEST R. JONES.

INTRODUCTION.

For many years oil chemists had been searching for a simple means of changing oleic acid into stearic acid in order to convert relatively cheap raw material into more valuable fats.

While the matter would seem very simple because of the closeness of their empirical formulae, *i. e.*, $C_{18}H_{34}O_2$ or oleic acid and $C_{18}H_{36}O_2$ or stearic acid, a difference of only two hydrogen atoms, it was not until a suitable hydrogen carrier or catalyzer was found at the very close of the nineteenth century that the changing of oleic acid into the harder stearic acid was commercially accomplished. A German patent in 1901 is probably the first one recorded having to do with the reduction of organic bodies by hydrogen in the presence of nickel catalyzers. Since that time many improvements and patents have followed rapidly.

It is not the intention of this paper to go into the technique and processes used for the hydrogenation of oils and fats, but briefly, the process consists of converting a soft fat or oil into a harder one by causing the unsaturated acids or glycerides to take on more hydrogen. To do this the fat is heated in a suitable container to about $160^\circ C$. (temperature varies in different processes) a suitable catalyzer is added, usually a salt of nickel or palladium, or the finely divided metals themselves, and hydrogen is run in under pressure, the process being continued for several hours or until the desired degree of hardness is obtained. The catalyzer is then filtered out, the product cooled and is ready for use unless further bleaching or deodorizing is desirable.¹

CHEMISTRY OF PROCESS.

Although the hydrogenation process is essentially one of reduction it will be easier understood if we consider the new product as obtained by "addition." To

explain—the graphic formula for ethane is written
$$\begin{array}{c} \text{H} \quad \text{H} \\ | \quad | \\ \text{H} - \text{C} - \text{C} - \text{H} \\ | \quad | \\ \text{H} \quad \text{H} \end{array}$$
 The

graphic formula for ethylene is written
$$\begin{array}{c} \text{H} \quad \text{H} \\ | \quad | \\ \text{C} = \text{C} \\ | \quad | \\ \text{H} \quad \text{H} \end{array}$$
 It will be noticed that in the latter

* Read before Detroit Branch A. Ph. A., April meeting, 1918.

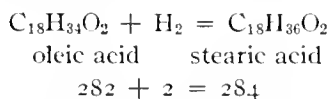
¹ For a more extended discourse on these processes see "Hydrogenation of Oils," by Ellis.

compound the linkage between the two carbon atoms is double whereas in the former compound the linkage is single. Compounds in which the linkage between the carbon atoms is single are called "saturated" compounds and can only form new compounds by "substitution," that is by substituting a different atom or group of atoms for one of the H atoms which is present.

A double bond or linkage in the structural formula of any compound, as in ethylene, is merely a convenient expression of certain facts which have been established experimentally, namely, that the compound is "unsaturated" and has the power of combining directly with certain other atoms or groups. In such cases the double linkage between the carbon atoms is changed to single and the new compound is said to have been formed by "addition."

Compounds which are unsaturated are the only ones then which are susceptible to hydrogenation. Thus its application to fats, now that suitable catalyzers have been found, is limited to those which contain unsaturated acids or glycerides.

Oleic acid, formula $\text{CH}_3(\text{CH}_2)_{14}\text{CH} : \text{CH}.\text{COOH}$, is a familiar example of an unsaturated acid. (Note the double linkage indicated by the two dots.) Therefore it is capable of being hydrogenated or converted into stearic acid, which is a saturated acid. The following equation represents the change which takes place:



From the molecular weights you will see that 282 pounds of oleic acid will yield 284 pounds of stearic acid by the addition of two pounds of hydrogen.

As the individual molecules of oleic acid are changed to stearic acid they of course exhibit the properties of that acid. The chief physical difference between oleic and stearic acids is that the former is a liquid and the latter a solid. If the process of hydrogenation is carried to completion, a hard, solid stearic acid would result on cooling, but as the process is entirely within our control we may stop it when any desired consistency has been obtained. This brings the possibility of using these fats for pharmaceuticals close to our own doors and one which we are not yet alive to the advantages obtainable. In pharmacy we have little use for either oleic or stearic acids, but the glycerides of the acids, namely, olein and stearin, are natural constituents of every fat or fixed oil we use in ointments, and this is where they seem destined for a great future use, in my opinion, as the glycerides can also be hydrogenated and thus yield us an entirely new set of ointment vehicles devoid of some of the objections of the present ones.

AN APPLICATION TO PHARMACY.

The most unsatisfactory ointment which pharmacists have to dispense is Zinc Oxide Ointment, U. S. P. In a paper, which I read before the A. Ph. A. convention in Detroit in 1914, it was plainly shown that the granulation and unsightly appearance of this ointment was due to the physical characteristics of the lard and could not be corrected. A hardened petrolatum vehicle was suggested and the Section on Pharmacopoeias and Formularies passed a motion suggesting that such a change be made in the U. S. P. IX formula for this ointment. The

sub-committee on ointments rejected the suggestion saying that "leading dermatologists favored the retention of the old formula." The reason was because benzoinated lard is absorbed by the skin, whereas petrolatum is not or only very slow. I doubt whether this ointment is intended to be absorbed when used, but that is a question of therapeutics which we will not consider at this time. If we can supply a substitute for lard, which will satisfy dermatologists from the standpoint of absorption and satisfy pharmacists at the same time, such a move would seem desirable to every fair-minded person. Such a thing can be accomplished with a hydrogenated cottonseed oil vehicle stiffened with wax as I have samples here to prove. These samples are all from two to four years old, have been kept at room temperature and are as perfect as when made.

It is not the intention of this paper to recommend any particular manufacturer's hydrogenated products, but as Crisco, a hydrogenated cottonseed oil, is quite a popular article particularly in the home, the experiments were conducted with that product. If such a product were marketed under a scientific name indicating its composition, it would, of course, be more desirable for our work. Also Crisco is a little too soft to replace lard entirely in our ointments and is open to the further objection that when melted alone it cannot be cooled to a smooth product by any practicable means. If the hydrogenation process were carried further these deficiencies could probably be eliminated. For this reason, I found it necessary to use wax to stiffen the ointments, which at the same time gives a smooth product.

The following formula is proposed:

| | |
|-------------------------------------------|---------|
| Zinc oxide..... | 200 Gm. |
| White wax..... | 125 Gm. |
| Hydrogenated cottonseed oil (Crisco)..... | 675 Gm. |

Melt the wax and hydrogenated cottonseed oil, add a small portion of the melted mixture and triturate with the zinc oxide till a smooth paste is obtained, then add the balance of the melted mixture and triturate till cool.

It may be found desirable to increase or decrease slightly the amount of wax, but this will be found out in time. Also it may be desirable to benzoinate the fat before making the ointment.

While I do not intend that such an ointment should be kept that long, I know from my experiments that it will keep perfectly for two years at least.

AS TO THE FUTURE.

Of course, at present such an ointment could not be dispensed as U. S. P. without the consent of the physicians. Most physicians will be open to such a suggestion when you tell them it is as quickly absorbed as lard, is cleaner, less liable to become rancid and is a more stable product in every way. I hope the demand will be such that it will eventually displace the present U. S. P. formula. Perhaps the demand for a hydrogenated fat suitable for pharmacy will cause manufacturers of such products to take notice of our wants and make one suitable to our needs. When they do, I predict an extensive future for such a product. We can use it to replace lard in all our ointments and thus eliminate some of our troubles.

Although I started to experiment with hydrogenated oils on an extensive scale two years ago, a change in positions has kept me so busy that I have not had time to continue the work since, consequently my experiments have been confined to only Zinc Oxide Ointment.

Acknowledgment is made to Parke, Davis & Company, in whose laboratories this work was conducted.

DETROIT COLLEGE OF PHARMACY,

April 19, 1918.

WHAT THE DRUG TRADE HAS DONE TO WIN THE WAR.*

The first paper of the symposium under above title and presented at the April meeting of the New York Branch, A. Ph. A. was by Mr. R. C. Stofer, who in his preliminary remarks referred to some of the orders that their firm had completed. He also stated that, in his opinion, pharmacy should disregard its characteristic modesty and take due credit for its achievements, many of which are the result of the marked degree of coöperation at present existing, by reason of the fluxing process which is going on between educators in pharmacy, retail pharmacists, and the excellently equipped scientific and research laboratories of progressive pharmaceutical manufacturers. Parts of his paper follow:

Digitalis: Through the intelligent direction of its collection and preparation for the market, American growers have succeeded in supplying digitalis much superior to the European article. We have received American-grown digitalis, which tested nearly two and a half times the U. S. P. standard. Experiments have been conducted in the scientific department with a view of determining the best physiological method for the estimation of the strength of digitalis preparations. Comparative tests are now being made by the one-hour frog method, the twelve-hour frog method, the cat method of Dr. Hatcher, and also the guineapig method. It is hoped from the results of these experiments a definite, scientific conclusion may be drawn as to which is the best method for testing digitalis and its preparations.

Mexican Scammony: Owing to the world war, true scammony became unobtainable in commercial quantities. Experiments, both chemical and physiological, have been made with the resin obtained from true scammony and that from the Mexican scammony. From the results of experimental work, data is now in the hands of the U. S. P. Revision Committee and they have been requested to permit the use of Mexican scammony as a source of resin scammony, as is done at the present time by the British Pharmacopoeia.

Aconite: It has been definitely shown by many investigators, that the present chemical method for the assay of aconite and its preparations is entirely unsatisfactory, as the results obtained do not indicate the therapeutic activity of the drug and its preparations. Experiments are being made, looking to the isolation of aconitine from benz-aconine and aconine, as it is claimed that these two alkaloids are not therapeutically active, to any great extent. Much research work is being performed upon the physiological method, in an endeavor to improve the new semi-official guineapig method of the Pharmacopoeia.

Belladonna Leaves: The leaves of Hungarian and German growth which we formerly received were oftentimes brown, of low assay, probably due to improper collection and preparation for the market. Much attention has been given in various sections of the United States to the cultivation, upon a commercial scale, of belladonna, and the American growers have been quick to grasp the advantage of high assay. By efficient methods, proper selection of seeds

* A symposium of the New York Branch, American Pharmaceutical Association, April meeting, 1918. Abstracts from papers by R. C. Stofer of Norwich Pharmacal Company; Saunders Norvell of McKesson & Robbins; H. C. Lovis of Seabury and Johnson, and S. B. Penick of S. B. Penick & Co.

from high assay plants, etc., there has been produced in this country belladonna assaying as high as 0.8 percent, or nearly three times the assay of the average European leaves. We now, by preference, purchase American-grown leaves as against even the good quality cultivated French leaves which reach the country in goodly quantities.

Hyoscyamus: Before the war, Russia was the principal source of supply, but the drug was notorious for its low assay and its generally poor physical condition, and it was practically impossible to obtain an article complying with the Pharmacopoeial requirements, except for occasional small lots of cultivated drug, which came over from England or Germany. America is making slow progress with the production of hyoscyamus, as successful cultivation is conceded to be difficult, however, Michigan, Maryland and Virginia produced limited quantities of this drug last year, which assayed about three times the U. S. P. standard. Therefore, we are confident that in time the American drug will be available in greater abundance.

The scarcity of belladonna and hyoscyamus led to many experiments with such combinations as pills and tablets, wherein stramonium was used in place of belladonna. As a result of clinical investigation, it was demonstrated that in many cases stramonium was entirely satisfactory to the medical profession and we have therefore been able to continue supplying such combinations as were in urgent demand with the full approval of the medical profession. By the way, stramonium grows abundantly in many sections of the country, but prior to the war, was collected only in a limited way. The cheaper labor abroad made it more profitable to import supplies from Europe, than to purchase here. Now, however, the collection in this country is enormous and we are entirely independent of outside sources. Generally speaking, American stramonium, though not cultivated, is of higher assay than the European article.

Cannabis: The U. S. P. IX recognizes American-grown cannabis, in addition to the Indian variety. This recognition has given a tremendous impetus to the growth and sale of American cannabis. Comparative tests demonstrate that the therapeutic action of the two varieties is similar, although, as a general rule, the Indian cannabis is considerably stronger than the American. This comparative difference in strength, however, can be well regulated by a proper consideration of dosage. The Pharmacopoeia requires that cannabis be standardized by determining the amount of drug sufficient to produce incoordination when administered to dogs, and by this test it is possible to select *Cannabis sativa*, which produced the desired clinical results; although as investigators, we realize that there is usually a difference in strength between the American and the Indian-grown drug. Under present-day conditions, it is practically impossible to secure sufficient quantities of the Indian variety to meet the demand, though, thanks to American initiative, the proper collection of the native drug again enables us to proclaim our independence. The biological assay of cannabis has, in all probability been more severely criticized than any other test in the Pharmacopoeia. The basic principle of test is fundamentally correct. With some slight modification, it will eventually be made more satisfactory. An investigation of the method has been under way for about six months and as this subject is in the hands of exceptionally capable men, we may expect satisfactory results at an early date.

Styrax: Before the war, all the styrax of the U. S. P. was imported into this country. The closing of this source of supply caused us to endeavor to find a product which would be similar in action. We are now in possession of an American styrax which, experiments indicate, is in every way as satisfactory as the European article, and, in the near future, this information will be compiled and placed in the hands of the U. S. P. Revision Committee. This is another triumph for American resourcefulness.

Pituitary Extract: After several years of almost constant experimental work, we have been able to assemble an apparatus which will physiologically estimate the strength of pituitary preparations within very narrow limits. The method employed is a modification of the isolated uterus method. Preparations so standardized have been exhaustively tested in maternity hospitals, and, we are pleased to say, it is now possible to produce a pituitary extract and standardize it, with the assurance that it will meet all demands.

Pepsin and Pancreatin: Experiments are being conducted to ascertain, if possible, the rate of deterioration that takes place in pepsin and pancreatin combinations. This work must necessarily be conducted over a considerable period of time, and it will probably be four or five years before any definite results will be in evidence.

Tincture of Ginger: The result of many experiments reveals that there is considerable difficulty in meeting the standards, as laid down in the U. S. P. IX. The results of the investigation have now been turned over to the chairman of the Revision Committee, who has charge of this and kindred subjects, and it is hoped that slight changes will be promulgated, which will permit of the manufacture without the difficulties that previously attended.

Mr. Stofer concluded his remarks by referring to various methods of conservation in sugar, glycerin, fats, etc. He also stated that many tablet formulas had been revised, particularly those containing narcotics, by the elimination of the latter in many of them.

Mr. Saunders Norvell modestly carried the credit of the work represented by his firm to the wholesale drug trade in general. He spoke of the many difficulties in securing supplies, labor shortage, and the series of taxation measures with which the wholesale drug trade had to contend. Notwithstanding the many difficulties, supplies have gone forward without serious delays and the drug trade has not been charged with profiteering. The Government has bought its drug and chemical supplies for less money than the trade; contrary to the story of the cartoon, depicting the hotel manager who said to the chef, "you cut down your portions 50 percent and we will raise the prices 50 percent—the war must be won." Mr. Norvell laid stress on the fine coöperative spirit of employees with the members of firms, not only in getting out orders, but in buying bonds and contributing to Red Cross, etc. He interestingly told the story of an order for 20 million 3-grain quinine tablets, which was then in the process of manufacture. Relative to this he said in part:

This is the largest single order for quinine ever placed in the history of this country. To fill this order will require 125,000 ounces of quinine—7,812 pounds, almost four tons. Piled on top of each other the 20,000,000 tablets would be 416,666 feet high—over 78 miles. Laid alongside of each other, they would reach from New York to the outskirts of Philadelphia; from Chicago to Milwaukee, or from Washington, D. C., almost to Richmond, Va.

To obtain the 60,000,000 grains of quinine contained in the tablets, approximately 108,000 pounds, 54 tons of cinchona bark will be used, each ton of bark it is estimated yielding about an average of 7 percent of quinine.

Figuring each cinchona tree as supplying an average of 200 pounds of bark, the 60,000,000 grains of quinine will be the product of 561 cinchona trees. As each tree furnishes suitable bark for producing quinine but once in an average of one and a half years, it has required 561 years of growth to produce the 60,000,000 grains of quinine.

To collect the bark, cure it, and transport it from the tropical forests engaged the work of thousands of natives for several months.

Several other illustrations of the present-day activities were reported. In concluding Mr. Norvell said: "This war is different from all other wars the world has ever known. It is a war of trained men. It is a war of organization. The soldiers in this war can accomplish nothing without the backing of the trained workers in every field at home."

Dr. Henry C. Lovis spoke of the participation in war activities of the surgical supply houses and the preliminary arrangements preparatory to supplying the Government needs. Fortunately the manufacturers in these lines had enlarged their factories in order to meet the orders of foreign countries prior to the entry of the United States into the world conflict. In connection with these immense orders the usual demand must also be considered. The following abstract of the paper is illustrative:

The first list of goods to be supplied included bandages of all sizes; absorbent cotton; first-aid packages; shell wound dressings; bichloride gauze; adhesive plaster; ligatures of all kinds.

The gauze packages consumed 110-million yards of gauze. It was necessary to secure the assistance of spinning and weaving mills, outside of the group of straight surgical dressings manufacturers to supply this immense yardage. Since the beginning of these requisitions up to the present time there has been a total of 386,000,000 yards of gauze contracted for. That has required day and night work of 30 different weaving mills. The yards of gauze equal 219,000 miles in length and one yard width and that means, taking the distance from New York to San Francisco in round figures as about 3000 miles, one continuous stretch of gauze from New York to San Francisco, back and forth, 70 times. To manufacture that quantity of gauze, just the gauze alone, would require 77,000 bales of cotton. Each bale weighing 500 lbs., this would mean 38,500,000 pounds of crude cotton requiring quite a respectable size plantation to produce it. There were 450,000 gross gauze bandages, compressed, ordered, which were $2\frac{1}{2}$ ", 3" and $3\frac{1}{2}$ " wide and 6-yds. long; 6,400,000 first aid packets put up in metal boxes enamelled in khaki color to match the soldiers' uniform; two of these go in a belt which each soldier carries; and in addition, two rubber-sheeting covered first-aid packets also go in his belt. Of those, there were ten million ordered. There were 34,000,000 yards Corrosive Sublimate Gauze, 1-yd. packages. One million and a half spools adhesive plaster, 1" x 5-yd., and one half-million $2\frac{1}{2}$ " x 5-yds., 1,400,000 shell wound dressings.

Details of other manufactures were given and Doctor Lovis closed his paper with a reference to the loyalty of those engaged in this line of manufacture.

Mr. S. B. Penick spoke of former sources of crude drugs from which supplies are no longer available. Some of these drugs are now obtained in this country, belladonna, digitalis, cannabis, hyoscyamus, stramonium, etc. The high cost of labor continues to be a problem but under present conditions supply is of first importance. Japan is furnishing valerian, chamomiles, hellebore and insect flowers while Italy, France and England are now supplying a number of botanicals heretofore procured from Central Europe. Nux vomica, rhubarb, senna, aloes and other drugs of the East have been difficult to obtain. The speaker alluded to the improved quality of drugs, due to Government supervision, and concluded with a compliment to those of the trade, who have coöperated in furnishing the Government and manufacturers with crude drugs. (See also paper by S. B. Penick, August issue, 1917, p. 695.)

CENTRAL INFORMATION BUREAU CONCERNING NATION'S HOSPITALS.

Dr. Franklin Martin, member of the advisory commission and chairman of the general medical board of the Council of National Defense, authorizes the following:

Information regarding the hospitals of the United States, in process of compilation since 1916, is now collated and indexed in the medical section of the Council of National Defense. A central bureau of information concerning the hospital facilities of the country, under war conditions, is thus provided. The data will be kept up to date from month to month. This bureau has not only the details of over 1,000 active hospitals but is also gathering full data concerning nearly 8,000 other institutions which include sanatoria, infirmaries, homes, asylums and dispensaries.

What each hospital has contributed in the way of medical men and internes for war service has been entered on the cards. The number of nurses who have volunteered and those remaining, the possibilities of expansion for war service, the results of personal inspection by State boards will constitute valuable active working data.—*Official Bulletin*.

SECTION OF HISTORICAL PHARMACY AMERICAN PHARMACEUTICAL ASSOCIATION.

MINUTES.

Chairman W. L. DuBois, of the Section on Historical Pharmacy, called the meeting to order in Claypool Hotel, Indianapolis, Ind., at 9.30 A.M. August 31, 1917. The first order of business was the reading of the chairman's address.

ADDRESS OF THE CHAIRMAN.

It has been said that Americans are not yet sufficiently imbued with the value and lessons of history and tradition. It is one of the tasks of this Section to create more and favorable sentiment among pharmacists for the preservation of whatever will give to our posterity a true historical picture of our present and past time, including its activities, aims, and achievements. I am certain that this Section will not let any opportunity pass for helpful service to the Association and to American Pharmacy.

History is interesting to look back upon, and it is pleasant to remember all those great and good men who have passed to the great beyond, who have done so much for pharmacy, especially those who were with us at our last meeting. I am afraid we do not fully realize the very great importance of doing our bit to carry on this work.

It would be an easy thing for our members from time to time to send in to the Historian matters of historical interest. As a matter of interest to coming generations, I would recommend that all members send to the Historian sketches of themselves and their impressions with their photograph.

I wrote several letters during the winter, and was very successful in finding those who kindly consented to prepare papers for this meeting, they all treat of interesting subjects, and I can promise you a program worthy of your close attention.

W. L. DuBois, *Chairman.*

CASWELL A. MAYO: I move that the paper which the Chairman has just read take the usual course.

(Motion seconded and carried.)

THE CHAIRMAN: The next order of business is the report of the Historian.

REPORT OF THE HISTORIAN OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The Editor of the Journal of the American Pharmaceutical Association is also Historian, the curator of contributions to this Section. It was through the hearty coöperation of the Treasurer that many of the photographs reported hereafter were received. It has been provided that every member of the Association be requested to send his or her photograph to the Historian, accompanied by a brief sketch of the life of the contributor. This provision has a growing value and it is hoped that all members who have not complied with the request do so as soon as possible. The data especially desirable are the events of every life, and also such other information of the correspondent's professional and business activity that should be made a matter of record.

Frederick T. Gordon who was associated with this Section in various capacities passed away this year. He had in his care a number of contributions that had been made to the Section, and Mrs. Gordon has turned these over to the Historian, among these is an interesting album presented several years ago by our fellow-member, Hugo Kantrowitz, editor of the *Deutsch-Amerikanische Apotheker Zeitung*, New York. There are a number of contributions, that have in years past been made, which your Historian has not been able to locate.

Last year the writer made the suggestion that an historical exhibit be provided at each annual meeting by the hosts; this has been adopted by Indianapolis members and will doubtless prove of interest not only to the visitors but also to the pharmacists of Indianapolis. Research

work and the collection of historical matter always brings up the thought of a home. The time may not be opportune just now, but we should bear the important matter in mind. We have ample accommodation for the present for historical matter that may come in.

This is the centenary year of the beginning of the United States Pharmacopoeia and in the Journal of the American Pharmaceutical Association for August a record of the event is made.

Since we met in Atlantic City, as far as we have received information, the following have been claimed by death:

David Strauss, Newark, N. J.
Theodore G. E. Otto, Columbus, Ind.
Conrad Schadt, Amana, Ia.
George C. Bartells, Camp Point, Ill.
Linus D. Drury, Roxbury, Mass.
Edwin P. Burleigh, Boston, Mass.
Robert H. Land, Augusta, Ga.
M. I. Wilbert, Washington, D. C.
G. M. Sutherland, Alameda, Cal.
A. J. Lachapelle, Turners Falls, Mass.
E. S. McKee, Cincinnati, Ohio.
J. F. Llewellyn, Mexico, Mo.
William C. Alpers, Cleveland, Ohio.
Cyrus J. Lammert, Cincinnati, Ohio.
Joseph Feil, Cleveland, Ohio.
N. Gray Bartlett, Chicago, Ill.
A. D. Thompson, Minneapolis, Minn.

Robert W. White, Philadelphia, Pa.
B. S. Cooban, Chicago, Ill.
C. Lewis Diehl, Louisville, Ky.
F. E. Farmer, Rutland, Vt.
Bower T. Whitehead, Brookings, S. D.
John C. Hurd, Somersworth, N. H.
George A. Ferguson, New York City.
Thomas F. Main, New York City.
Albert F. Stiefel, Pittsburgh, Pa.
Joseph Weinstein, New York City.
Frederick T. Gordon, Philadelphia, Pa.
J. F. Pearson, Annapolis, Md.
Alois von Isakovics, Monticello, N. Y.
George V. Moschel, Spring Valley, Ill.
J. O. Schlotterbeck, Ann Arbor, Mich.
Frederico Grimany, Santiago de Cuba, Cuba.
D. Kirkland, Los Angeles, Cal.

Thirty-four in number, about twelve per thousand of our membership; four of the deceased were members of the U. S. P. Revision Committee; two had been presidents of the American Pharmaceutical Association and one, an Honorary President, two had been Chairmen of this Section. Death has also entered the homes of a number of our members.

The present is our field of duty but we should hold those who added benefits to our Association and joy to our lives in affectionate remembrance.

Respectfully submitted,

E. G. EBERLE, *Historian*.

CONTRIBUTIONS RECEIVED.

PHOTOGRAPHS AND SKETCHES.

Charles A. Apmeyer, Cincinnati, Ohio.
R. A. Austin, Cairo, N. Y.
J. G. Beard, Chapel Hill, N. C.
I. J. Blumenkranz, New York City.
Charles Bidwell, Albion, Ind.
Sarah Bustillo, Havana, Cuba.
K. E. Bennett, Bryson City, N. C.
C. F. Chandler, New York City.
Angelica M. Curbelo, Havana, Cuba.
Thomas P. Cook, Deceased.
R. W. Conzet, Greenup, Ill.
Dra. Paula Coll, Havana, Cuba.
J. H. Dawson, Glendora, Cal.
R. A. Dinkler, Hennessey, Okla.
Wm. B. Day, Chicago, Ill.
A. R. L. Dohme, Baltimore, Md.
E. G. Eberle, Philadelphia, Pa.
C. L. Eddy, New York City.
John T. Elam, Henderson, Ky.
O. A. Farwell, Detroit, Mich.
Joseph Feil, Deceased.

W. W. Friedenburg, Winfield, Kans.
J. P. Gilmour, London, W. C., England.
F. C. Godbold, New Orleans, La.
B. B. Goolkasian, Boston, Mass.
W. L. Harbaugh, Haverford, Pa.
Mrs. Alice B. Halstead, Muscatine, Ia.
Charles Holzhauer, Newark, N. J.
B. E. Hockert, Hartford, Conn.
T. N. Jamieson, Pasadena, Cal.
George Kleiman, New York City.
J. F. Llewellyn, Deceased.
R. A. Lyman, Lincoln, Neb.
J. L. Lemberger, Lebanon, Pa.
R. H. Land, Deceased.
J. W. Morrisson, Chicago, Ill.
Wm. Mittelbach, Booneville, Mo.
H. Lionel Meredith, Hagerstown, Md.
Alex B. J. Moore, Montreal, Canada.
Thomas F. Main, Deceased.
W. J. J. Paris, Rosiclare, Ill.
J. C. Prote, Jr., Astoria, N. Y.

Albert Plaut, New York City.
 Clarence G. Stone, New York City.
 H. W. Schimpf, New York City.
 A. G. Schlotterbeck, Portland, Me.
 J. O. Schlotterbeck, Deceased.
 F. E. Stewart, Philadelphia, Pa.
 Paul G. Schuh, Cairo, Ill.
 Michael Saccar, Hallettsville, Texas.
 W. G. Sprague, Flushing, Mich.
 John W. Stokes, Indianapolis, Ind.

Eli S. Troupin, Stamford, Conn.
 Orazio Tocco, Brooklyn, N. Y.
 P. Henry Utech, Meadville, Pa.
 T. S. Van Aller, Mobile, Ala.
 D. von Riesen, Marysville, Kans.
 J. A. Wolfe, Philadelphia, Pa.
 Francis B. Winski, Stamford, Conn.
 M. I. Wilbert, Deceased.
 Rudolph Wirth, New York City.
 Carl Whorton, Gadsden, Ala.

PHOTOGRAPHS.

Carl L. Alsberg, Washington, D. C.
 Mrs. F. M. Apple, Philadelphia, Pa.
 F. M. Bass, Decherd, Tenn.
 Charles H. Bassett, Boston, Mass.
 George M. Beringer, Camden, N. J.
 Mrs. George M. Beringer, Camden, N. J.
 J. C. Brenner, Gonzales, Texas.
 J. C. Burton, Stroud, Okla.
 Otto F. Claus, St. Louis, Mo.
 W. L. Cliffe, Philadelphia, Pa.
 Adolph Dreiss, San Antonio, Texas.
 Hermann Dreiss, San Antonio, Texas.
 C. A. Duncan, Dallas, Texas.
 J. W. England, Philadelphia, Pa.
 Bernard Fantus, Chicago, Ill.
 Mrs. Eben G. Fine, Boulder, Colo.
 J. F. Finneran, Boston, Mass.
 C. M. Ford, Cambridge, Mass.
 E. H. Gane, New York City.
 E. N. Gathercoal, Chicago, Ill.
 J. G. Godding, Boston, Mass.
 James M. Good, St. Louis, Mo.
 Samuel C. Henry, Philadelphia, Pa.

S. L. Hilton, Washington, D. C.
 H. P. Hynson, Baltimore, Md.
 C. W. Johnson, Seattle, Wash.
 Mrs. Jean M. Kenaston, Bonesteel, S. D.
 William J. Koch, New York City.
 Charles H. Mayo, Rochester, Minn.
 Niels Mikkelsen, Kenesaw, Neb.
 Harry J. Novack, Philadelphia, Pa.
 Oscar Oldberg, Chicago, Ill.
 Bertha Ott, Cincinnati, Ohio.
 Frederick B. Power, Washington, D. C.
 W. O. Richtman, Madison, Wis.
 Mrs. E. A. Ruddiman, Nashville, Tenn.
 J. D. Stocking, Clarendon, Texas.
 W. J. Sturgeon, Kittanning, Pa.
 George D. Timmons, Valparaiso, Ind.
 Joseph Vadheim, Tyler, Minn.
 C. E. Vanderkleed, Collingswood, N. J.
 Walter J. Vitous, Morton, Wash.
 John C. Wallace, New Castle, Pa.
 James Weyrauch, Chicago, Ill.
 H. M. Whelpley, St. Louis, Mo.

SKETCHES.

C. O. Bigelow, New York City.
 Woods A. Caperton, Indianapolis, Ind.
 Francis B. Hays, Oxford, N. C.
 E. S. Heberd, LaCrosse, Wis.

J. U. Lloyd, Cincinnati, Ohio.
 Ewen McIntyre, Deceased.
 Edw. W. Morse, Deceased.

BADGES.

Illinois Pharmaceutical Association and Illinois Pharmaceutical Travelers Association, Springfield Meeting, 1915. Contributed by Wm. B. Day.

Texas Pharmaceutical Association, San Antonio Meeting, 1917. Contributed by E. G. Eberle.

Washington Pharmaceutical Association, Spokane Meeting, 1917. Contributed by W. E. Bailey.

PROGRAMS.

Joint Meeting of the American Pharmaceutical Association and the California Pharmaceutical Association, San Francisco, 1915.

National Association Boards of Pharmacy, Philadelphia, 1916.

Twenty-fifth Anniversary Testimonial Dinner to Dr. Wm. C. Anderson, November 21, 1916.

Testimonial Dinner to Prof. Wm. B. Day by Alumni, June 6, 1917.

Testimonial Banquet to J. U. Lloyd by Cincinnati Branch, October 1916.

Illinois Pharmaceutical Association and Illinois Pharmaceutical Travelers Association, Springfield, 1915. Contributed by Wm. B. Day.

Illinois Pharmaceutical Association and Illinois Pharmaceutical Travelers Association, Fox Lake, 1914. Contributed by Wm. B. Day.

Illinois Pharmaceutical Association and Illinois Pharmaceutical Travelers Association, Springfield, 1912. Contributed by Wm. B. Day.

Illinois Pharmaceutical Association and Illinois Pharmaceutical Travelers Association, Rock Island, 1911. Contributed by Wm. B. Day.

Illinois Pharmaceutical Association and Illinois Pharmaceutical Travelers Association, Springfield, 1916. Contributed by Wm. B. Day.

American Pharmaceutical Association, Atlantic City, 1916.

Washington State Pharmaceutical Association, Spokane, 1917. Contributed by A. W. Linton.

Programs, etc., of Texas Pharmaceutical Association meeting, San Antonio, 1917.

Testimonial to Dr. F. J. Wulling.

MISCELLANEOUS.

Photo—Officers and Directors of the American Druggists Fire Insurance Co., Tenth Anniversary.

Report of the Tenth Anniversary Convention of the American Druggists Fire Insurance Co.

12 Snapshots, Atlantic City Meeting, 1916. Contributed by Druggists Circular (C. L. Eddy).

2 Snapshots, Atlantic City Meeting, 1916. Contributed by Mr. and Mrs. Peacock.

5 Snapshots, Atlantic City Meeting, 1916. Contributed by Hugo Kantrowitz. Tribute to Dr. Wm. C. Alpers, printed in the Journal.

Brochure, Chicago Veteran Druggists Association, Twentieth Anniversary, 1917.

Photo—Chicago College of Pharmacy.

Resolutions on the death of C. Lewis Diehl, by Louisville College of Pharmacy.

3 Photos—interior of store of Mrs. Alice B. Halstead, nee Braunwarth, Muscatine, Iowa, taken in 1892.

Photo—Thomas D. McElhenie's Pharmacy, Brooklyn, N. Y.

N. A. R. D. Groups, photos sent in by Caswell A. Mayo.

Mulford Digest—25th Anniversary of Mulford Laboratories, 1917.

Snapshots, San Francisco meeting, by Miss Gertrude Scherling.

Snapshot, Half dozen pharmacists in attendance at New York City Meeting, including deceased members, W. M. Searby, W. C. Alpers, S. A. D. Sheppard.

Snapshot, Members A. Ph. A. after the Montreal Meeting on a trip up the Saginay River.

Snapshot, Ladies in attendance at the Hot Springs Meeting.

Ladies' Souvenir, A. Ph. A., Indianaapolis, 1906. Contributed by H. M. Whelpley.

Coupon Tickets, Washington Pharmaceutical Association, Spokane, 1917. Contributed by W. E. Bailey.

Letters, Wholesale Druggists in California in 1857, including a letter from Prof. William M. Searby.

Personal correspondence of E. G. Eberle with Martin I. Wilbert, during 1916.

Photo—First Meeting of the Texas Pharmaceutical Association, Dallas, May 1, 1879. Contributed by E. G. Eberle.

U. S. Pharmacopoeia, 1830. Contributed by Dr. F. B. Kilmer.

Photo—Texas Pharmaceutical Association, Waco, May 1892.

U. S. Dispensatory, 6th Edition, 1845. Contributed by F. B. Kilmer.

History of England, 1825. Contributed by F. B. Kilmer.

Moore's "Monitor," 1803. Contributed by F. B. Kilmer.

Some Clippings and letters sent in by Dr. Whelpley include: Death of T. Morris Perot, Frederick Stearns, Wm. Weightman and H. J. Schlaepfer; sketches of Wm. Mair, F. C. S., John Larrabee, Dr. Cook, written by Motter, and H. E. Glick; letter of S. A. D. Sheppard, June 4, 1903; Personnel of Commissioners of Pharmacy, Washington, D. C., 1903, Frank C. Henry,

Henry A. Johnston, Francis P. Morgan, Murray G. Motter, Fred T. Hafelfinger; Lists of lady pharmacists in Arkansas, Illinois and Indian Territory.

THE CHAIRMAN: Gentlemen, you have heard the Historian's report. What is your pleasure?

H. M. WHEPLEY: I move that it be received and take the usual course.

(Motion seconded and carried.)

THE CHAIRMAN: The next report is that of the Indianapolis Historical Exhibit.

REPORT ON THE INDIANAPOLIS HISTORICAL EXHIBIT.

(Verbal Report by Chairman E. G. Eberhardt.)

Mr. Chairman: I have no formal report to make. As a matter of fact, I did not know that a report was expected until I saw the program. While we met with some success in getting together a few relics, we did not realize how difficult it was going to be to collect exhibits that would, at least in some degree, represent historical Indiana pharmacy.

In the first place, we are making contemporaneous history at such a rate that it is very difficult to get people interested in things of the past, and while we had some responses to our inquiries, it was very difficult to get prospective contributors to realize what we wanted. I have had men say to me, "If I only knew what you wanted, I could have helped you out. I have such and such things at home." We tried to make it plain to them by correspondence, but they did not seem to get the idea.

Then we met another condition: People, as a rule, do not realize the value of historical matter, and the junkman gets a great deal of what ought to be preserved for its historical value. We found that much of the material which would be of great interest in an exhibit of this kind, has gone, and gone forever. The junk and gentleman vandals are the worst enemies that we have. I think this is the very thing that this Association has an opportunity to accomplish a great work in, and that is to make our members understand that an historical exhibit is of much live, educational value, to impress the members that some of the old things they throw away are worth preserving.

The exhibit will have to speak for itself. We have material from outside of this city, but most of it is from local druggists. It goes back forty or fifty years, some of it sixty or seventy-five, and a few of the items were brought over from Germany by some old-time members.

I am sorry we did not succeed in securing all the material we hoped to get. For instance, we expected some material from Browning, Sloan & Co. It was inaccessible, as the family's belongings are stored. However, we have obtained a few things, among them Parrish's Pharmacy, the Fourth Edition. I had hoped to get a picture of Mr. George Sloan, but was unsuccessful.

If your Historian sees any article that he would like to have for the permanent collection, of this exhibit, we shall be very glad to put him in touch with the owners of the same, and I think probably such material would be donated or loaned. I believe such a local exhibit as this can be used as the means of selecting material for a National Pharmaceutical Exhibit.

I want to thank all of those, on behalf of the Committee, who have contributed to the exhibit.

THE CHAIRMAN: You have heard the report of Mr. Eberhardt.

CASWELL A. MAYO: I move that the report be accepted, and that the thanks of the members be extended to the Committee for the trouble they have taken in making the collection.

(Motion seconded and carried.)

EDITOR EBERLE: We would like to have whatever the exhibitors are willing to donate. It is contemplated to provide a room or space in the Smithsonian Institute in Washington, where historical matter will be properly taken care of.

EDWARD KREMERS: Those of you who will recall the organizing of this Section back in 1902, will understand what pleasure I took in working out this

matter, and in connection with the work being done in this Section. It is indeed exceedingly gratifying to see this exhibit, modest as it is, in comparison with the exhibit in 1902, or even last year, yet its significance is such that we should not pass it without a word.

Mr. Eberhardt has said that no doubt some articles exhibited might be turned over to the American Pharmaceutical Association for a permanent collection. I trust this may be done. On the other hand, it might be well for the American Pharmaceutical Association not to overload its exhibit. It may be better to keep part of that exhibit right in Indiana. While I appreciate the museum at Washington, I also appreciate the missionary work which the local exhibits can perform, without detracting from the National Exhibit, which should be our first aim.

EDITOR EBERLE: If the Section so concurs, I would like to have the Historian instructed to ask the members at Chicago to provide an historical exhibit for the 1918 meeting. I do not know whether a motion is necessary or not.

H. M. WHELPLEY: I had two or three things in mind, part of which Mr. Eberle presented, and another person presented another part of them. I have particularly in mind that the Chairman of this Committee should submit to this Section a list of the articles exhibited, and the names of those who have contributed these articles for the Exhibit.

I particularly endorse the recommendation, and I think it should go forward from this Section, that the Committee for the Chicago meeting should continue this plan of having a local exhibit.

In regard to the disposition of this Exhibit, Dr. Kremers has made the point very clear, and the only word I want to add to it is this, that we should be careful that any exhibit in the collection that is deposited in the Smithsonian Institution, temporarily, should not include any of those things that are of local interest.

As an example of what I mean, you have much here that pertains to Indianapolis, or pertains particularly to Indiana, without being of any particular significance beyond the borders of this State. A mortar or a picture, or something of that kind from the store of Ex-President Sloan of the American Pharmaceutical Association, and one of the prominent men in American pharmacy, would be very appropriate for this National Museum. It might also be well to deposit with the American Pharmaceutical Exhibit some things that are duplicates, even though they are not of a National character. They might be held so that later on they could be placed where they would be of permanent interest.

I am certainly pleased to see how the historic interest has developed and grown in pharmacy. I know what some men like Doctor Kremers have done, and remember when he spoke very discouragingly about the matter some years ago, and now it must be gratifying to him to see that his own work is bringing results.

F. E. STEWART: I received a letter from the Massachusetts Agricultural College, Extension Service, signed by Mr. Wayne Arny, that I would like to present as a matter of historic interest.

(Mr. Stewart read the letter from Mr. Arny.)

CASWELL A. MAYO: I move that the letter be referred to the Council for consideration in connection with the plans of the Exhibit. (See December 1917 JOURNAL A. PH. A., p. 1098.)

A paper, "The Development of Manufacturing Pharmacy" was presented by Mr. J. K. Lilly and brought out considerable discussion and comment. Professor Lloyd indicated in his remarks that Mr. Lilly might be willing to donate a picture of the original Lilly Laboratory to the Section. He had in his possession some apparatus used by Dr. John King and two suppository molds used by Dr. W. D. Chapman and, if a permanent exhibit was provided he would present these to the collection. (The paper by Mr. Lilly is printed in this issue of the JOURNAL.)

J. N. HURTY: We solicited Mr. Charles Dennis, an old-time druggist for a contribution. He said he was never a pharmacist, but at one time he thought he was a part of an apothecary. He has become a very eminent writer. He has written no book, but he has become very prominent as a writer in newspapers of this section. He has been contributing articles that are full of wit and wisdom. He was requested to give us some reminiscences in regard to early pharmacy in this State, and he addresses this letter to Mr. Eberhardt.

INDIANAPOLIS, IND., August 7, 1917.

MR. E. G. EBERHARDT:

Some weeks ago my long-time friend, Dr. John N. Hurty—alas, that even those in whom one most confides should be the first to take advantage of one's feeble resistance and impale one on the sharp hook of a promise—asked me to write something concerning the early years of pharmacy in Indianapolis.

Fifty-five years ago when first I entered the drug trade as a soda-water boy and general roustabout, there were more farmers than pharmacists in Indiana. The only pharmacist in this city in the sixties was Dr. George W. Sloan, who was not at all puffed up by this distinction, but then and always after was the most genial and kindly gentleman of all my acquaintances, a true friend and a man of wide information which he could communicate most happily without his auditor being distressed by lack of knowledge.

Along in the sixties there was not, as my remembrance goes, a single sign proclaiming a pharmacy in this modest little city. I believe there were only thirteen—fateful number—drug stores and of these only two dared venture on the title "apothecary." These were conducted by Germans and in Teutonic script on the show window they blazoned to the world the word "Apotheker."

In the sixties and far into the seventies the pharmacist, as I said, was next to unknown. We were not then the physician's "cook" but merely druggists and dealers in "paints, oils, varnishes, dye-stuffs, window glass, perfumery, fancy goods, patent medicines, chemicals, glass-ware, putty, brushes, spices, cigars, tobacco"—and although we did not mention it above a whisper—all kinds of vinous and spirituous liquors. In that day the druggist did not sell candy—except as an evasion for vermifuge calculated to deceive innocent childhood—no postage stamps, nor did he take in washings—all this came later.

In that day the child of pious parents might be trusted with some pieces of copper coin for the missionary box on a Sunday morning as there was no candy counter in the drug store—now the pharmacy—to divert the contribution from the pagan to the 'pothecary. The old-fashioned drug store had but two articles in its inventory to beguile the sweet toothed youth of that time; one of these was *radix glycyrrhiza*, liquorice root and the other was jujube paste.

The druggists and his skillful assistants in the course of a single day played many parts. The same hands and the same smile that had just weighed out fifteen pounds of yellow ocher, ten pounds of Venetian red and measured five gallons of linseed oil, boiled or raw, would wait upon the fashionable lady whose favorite odor was Patchouli, which she bought at \$3 an ounce, Lubin's extract, for this was in the days of the civil war when our currency was worth but little more than 33 cents of a dollar on a gold basis.

There was not then nor for long afterward a school of pharmacy in Indiana, but the proprietor, or perhaps the head clerk, was not to permit the cub to remain in ignorance of the history of the roots and herbs that he handled. This was before the manufacturing pharmacist had taken away all the rudiments of the business and furnished everything ready-made and sugar coated. The cub was then required to take out the iron mortar and with blows that could do credit "to days of old when knights were bold," smash black cohosh, blood root or any other character nominated in the *materia medica* to diminutive smithereens. The blood root was one especially fine to the nostril of the young acolyte.

On a winter's evening the cub, when trade would flag, would be set to read *Parrish's Pharmacy* or in what he came to believe the compendium of all knowledge—the *United States Dispensatory*. If the cub should be a laggard in going to his duty, there was something else in store for him. He could spend that winter evening in putting up essence of peppermint and cinnamon, in making and boxing seidlitz powders or getting up a supply of castor oil, Bateman's drops and Godfrey's cordial—which by many years had anticipated the "soothing syrup for children." The drug cub of that day, as it recurs to my remembrance had fewer evenings off than now. The idea appeared to pervade the elderly drug mind that holidays should be few and the working hours should be long. There were no motion picture shows, no short skirted vaudeville and there was a narrow chance that the cub should be able to attend the annual circus.

Yet, I cannot but believe even with these handicaps, the cub of the war-years of 1861-65 was favored with a knowledge of current affairs above the boy of today's pharmacy. The gossip of the little city as there were no clubs or club rooms in that day met at the drug store and around the wood-fires that crackled in the stove. There were many discussions of various themes—the war politics, and religion to which with eager ears the boy listened—and fireside tales told by doctors, lawyers, and other "leading citizens," who had leisure to be better talkers than we have today and spared no detail to render a narrative interesting.

Perhaps—though I do not insist upon this—the drug cub of that day had an originality in mischievous invention of which the pharmacist boy is untainted or immune—I remember a team of two cubs in a Washington street drug store who were the authors of a sensation that was for some days a cause of much alarm. It was given half a column in the newspapers of that day and there were many nervous persons who for several days evaded the south side of Washington street between Pennsylvania and Meridian streets, particularly that part fronting the New York Store.

These young artists had possessed themselves of a couple of long glass tubes and from a second story window at intervals during the day they would fire pellets of putty at unsuspecting passers-by. Their aim was so accurate and their windpower so strong that it was no trouble at all for them to hit a good-sized neck above the collar at a distance of two hundred feet or more. They were never detected and these attacks were laid to some anonymous marksman who was armed with an air gun, all the more dangerous in that it made no noise when discharged. It was lucky for the cubs that this was so. Their discharge had they been detected would have made considerable noise and perhaps have met with the attention of the criminal court.

A drug cub of my acquaintance who was, indeed, for a time in my employ, but was permitted without serious remonstrance on my part to sever his connection, was a past master of mischief. One day a young fellow from the country entered the store and with a furtive glance at the surroundings selected the cub with the feeling that that young personage would not be suspicious as to his purpose asked the cub for a Spanish fly. The cub disappeared for a moment and returned from the backyard with a buzzing blue-bottle fly in a one-ounce vial—"ten cents" said the cub.

"Why," said the country yokel, "I did not know they were alive."

"Yep," said the cub, "we only have 'em alive, that's the only kind that'll do the business."

On another occasion a woman in the neighborhood, a good customer, brought her two small boys into the store and turning the lads around so they faced backwards, said, "see what your boy has done?"

The cub had poured a thin trail of sulphuric acid on some boxes whereon the boys of the neighborhood were wont to congregate and the woman said this had eaten out the seat of the youngsters' trousers, for which prank the proprietor was called upon to pay damages.

I have quite serious doubts as to any benefit that may come from this recital of ancient reminiscence, but I have been so long out of touch with the trade—which is now a profession—that any effort in which the people of today might be interested can scarce be anything but a failure.

(Signed) CHARLES DENNIS.

J. N. HURTY: There is a little town in Indiana called Gassport, where resides an old character, Dr. Wooden. He is eighty-six years old. He has been in the drug business over sixty years, and he has written us a letter which I will read to you.

GASSPORT, IND., August 14, 1917.

E. G. EBERHARDT:

In reply to circular letter of this date, I commenced practicing medicine at this place in the spring of 1851, 66 years ago. I graduated from the Indiana Central Medical College, Indianapolis, Ind. When I commenced practice here we had no railroads, telegraph, telephones, pike roads, microbes and appendicitis, but we had plenty of horse-flies and mosquitoes along White River. I was my own pharmacist, manufactured all of my tinctures by the old process of 14 days' maceration and then filtering. I also manufactured all the cathartic and ague pills. I got to be an expert in making pills; could roll two at a time with my hands.

That was pharmacy—early pharmacy in this part of Indiana. What a change now! However the physicians of back in the 40's and 50's were just as much up-to-date as the physicians are to-day, considering their environment. It is true that the thumb lance and large doses of calomel have been relegated to the rear, and 50 years from now the hypodermic syringe and sugar-coated tablet will follow along with the lancet and calomel. What then will be the practice? I apprehend almost all nervous diseases will be treated mentally, without the use of nauseating remedies. The science of medicine will still progress. Pharmacy will still progress. But don't arrogate to yourselves that you know about all that is connected with pharmacy now.

Yours respectfully,

(Signed) JERRY WOODEN.

Dr. J. N. Hurty then read a paper in which he entertainingly and interestingly reported some of his Drug Store Recollections. (We hope to print this paper in a later issue of the JOURNAL.)

The next number of the program was a paper by Caswell A. Mayo on "Antique Mortars," illustrated by lantern slides. The illustrated article was published in the *American Druggist* and also in the *Alumni Journal* of the New York College of Pharmacy, July 1917. The exhibiton of these mortars was held at the College and included the Fraser, Pfungst and Morgan collections, among the latter a mortar belonging to Sig. Enrico Caruso. The lecture was arranged according to periods and also the sources of these mortars. The value of the mortars exhibited was estimated at about twenty-five thousand dollars.

The next paper was by Frank H. Carter and entitled "Historical Pharmacy of Indianapolis." Then followed one by Dr. Edward Kremers, "Lafitan's Memoir on Ginseng." (See May issue 1918, JOURNAL A. PH. A., p. 448.)

Edward A. Sayre presented a continuation of the history of the New Jersey Pharmaceutical Association, bringing his contributions to the close of 1916.

Hugo Kantrowitz next read a letter from Wilhelm Bodemann of Chicago relating to the Chicago Veteran Druggists' Association. (Printed May 1918, JOURNAL A. PH. A., p. 448.)

W. F. Gidley presented a history of Purdue University School of Pharmacy.

Francis Hemm summarized an interesting collection of historical material relating to Carl Ludewig Lips, an apothecary of St. Louis from the 50's to the

'70's. An English translation of the items was turned over to the Section. In brief, the papers are summarized as follows; the originals are in possession of the Alumni Association of the St. Louis College of Pharmacy:

1. The birth and baptismal record of Carl Ludewig Lips, an apothecary of St. Louis during the fifties and sixties and seventies.
2. His school certificate.
3. Proof of requisite preliminary education.
4. Certificate of apprenticeship.
5. Diploma.
6. The apothecary's oath taken by Lips.
7. Proof that Lips has taken the oath in this body.
8. Reports of two of Lips' pharmacy inspections.
9. Certificate of Lips' honorable discharge from military service.
10. Testimonials received by Lips from his several employers.

Dr. H. M. Whelpley presented reprints from Meyer Brothers' Druggist of reminiscences of Professor C. Lewis Diehl by his daughter. The personality of this lovable character is clearly shown. The article is printed in the publication mentioned for August 1917, pp. 250-251.

Following the reading of each paper the contributors were given a vote of thanks. The next order of business was the election and installation of officers for the ensuing year as follows: *Chairman*, L. E. Sayre of Kansas, and *Secretary*, Hugo Kantrowitz of New York. After extending a vote of thanks to the retiring officers the Section adjourned.

THE DEVELOPMENT OF MANUFACTURING PHARMACY IN INDIANA.*

BY J. K. LILLY.

Until the period following the close of the Civil War there were no manufacturing pharmaceutical establishments in the State of Indiana, such operations being limited to small laboratories in wholesale or retail drug houses. The house of Craighead & Browning, afterwards Browning & Sloan, located in Indianapolis, had a large wholesale and retail business and made a great many of their own preparations, but did not sell them to others. It is an interesting piece of history that as late as 1885 or 1886 the retail department of Browning & Sloan did a larger volume of business than any other concern in the United States. A force of twenty-five or thirty clerks were employed. A prescription counter about fifty feet in length literally swarmed with prescription clerks, and a very large portion of the dispensing of drugs for Central Indiana was handled by the store. A large building on Washington Street was occupied by a large stock of merchandise and nothing but drugs and immediately allied lines were handled. The synonym for the firm name of "Apothecaries Hall" was employed and appeared on all signs and printed matter. George W. Sloan, of this firm, was a life-long member of this Association and at one time its president.

The first laboratory for the manufacture of pharmaceutical preparations in Indiana was established by Mr. James E. Lilly at Evansville, Ind., in the year

* Read before the Section of Historical Pharmacy, A. Ph. A., Indianapolis meeting, 1917.

1870. The title of this firm was James E. Lilly & Company, the company being his father-in-law, Captain Dexter, a noted steamboat captain and owner of several boats running on the Ohio river. In 1872 Capt. Dexter's interests were purchased by a Mr. Phelan, the firm becoming Lilly & Phelan. Considerable progress was made by this concern during the few years of its existence and a catalogue on display in the historical exhibit of this meeting shows that considerable quantities of goods must have been shipped outside the confines of the State. In those days river traffic was very heavy and Evansville was favorably located for all Ohio and Mississippi River points, also their tributaries. Owing to financial speculations by the junior member of the firm of Lilly & Phelan, financial embarrassment overtook the concern and it went out of business in 1874. Mr. James E. Lilly then entered the employ of Wm. R. Warner & Company, of Philadelphia, but in 1878 became associated with his brother Eli at Indianapolis and has been continually associated with Eli Lilly & Company as partner and officer since that date.

About the year 1875 the firm of Buntin & Armstrong, of Terre Haute, began the manufacture of a line of pharmaceutical preparations consisting principally of elixirs and syrups, and secured a substantial volume of trade throughout Indiana and Illinois. Subsequently this line was abandoned by this concern upon its dissolution, W. H. Armstrong establishing a surgical instrument house and Mr. Buntin establishing the Buntin Drug Company, of Terre Haute, which is still in existence as a retail drug store.

In 1873 Eli Lilly, associated with Dr. John F. Johnston, established the firm of Johnston & Lilly at Indianapolis.

In response to a request by the committee of your Association, a brief synopsis of the life of Eli Lilly is given as follows:

He was born in Baltimore, Md., in 1838, the Lilly family having been established in and around Baltimore from a period antedating the Revolution. During infancy he removed with his parents to the Blue Grass region of Kentucky, first residing at Lexington and later upon a farm near the town of Warsaw, in Gallatin County. When still quite a small lad the family removed to Greencastle, Ind. This town remained the family home for many years. Along in the fifties young Eli paid a visit to his Uncle Caleb, at Lafayette, Ind. In those days Lafayette was looked upon as the coming metropolis of the West, being at the head of navigation of the Wabash and also on the thriving Wabash & Erie Canal. In wandering about the public square, taking in the sights of the city as country-town boys are wont to do, his attention was attracted to a large sign depicting the story of The Good Samaritan. This sign occupied a goodly portion of the front of a building over the door of the drug store of Henry Lawrence. Mr. Lawrence was a highly educated English apothecary and enjoyed the confidence and patronage of a large following of physicians and the laity. He called his store "The Good Samaritan Drug Store." This caught the youthful fancy of Eli, and upon returning to the office of his uncle he solicited his assistance in securing a job in that Good Samaritan Drug Store. This was very fortunately accomplished and Eli immediately entered the employ of Mr. Lawrence as an apprentice on the old English plan of pharmaceutical apprenticeship. It was a thorough school and Eli succeeded in winning the approval of his preceptor.

Many are the interesting stories told of pharmaceutical manipulations of those early days in The Good Samaritan Drug Store—the manufacture of pills by hand in large quantities, the powdering of gamboge and other noxious substances in iron mortars, with one's respiratory organs protected by wet cloths, the daily study hour, the hour of recitation before retiring, the early hours of opening, building the fire on cold mornings, will all be familiar to those informed on early pharmaceutical training. In due course Mr. Lawrence announced that Eli was competent to conduct his own store. He thereupon returned to Greencastle and after a brief clerkship his father assisted him in establishing a store in which he was just beginning to make some progress when the Civil War began in 1861. Having always possessed a love for military affairs, he immediately volunteered for service, literally locking his front door and leaving for the front. He served his country continuously throughout the war, first as Lieutenant in an Infantry Company on the three months' service, then Captain of Artillery for several years, in which he took part in Chickamauga, Hoover's Gap, Mossy Creek and other important battles. Later he entered the Cavalry service and was mustered out as Colonel of the 9th Indiana Cavalry.

At the close of the war he undertook cotton planting in Mississippi. This venture, however, proved disastrous, droughts and malaria ruining him in health and purse. Coming north in '67, he secured a place with the wholesale drug house of H. Dailey & Company, in Indianapolis, having charge of the little laboratory and the filling of certain kinds of orders. In 1869 he formed a co-partnership with Mr. James Binford, of Crawfordsville, Indiana, and opened a retail store in Paris, Edgar County, Ill., under the firm name of Binford & Lilly. This store still exists under the name of the Binford Drug Company. This proved a successful venture and gave him a small amount of capital with which he joined with Dr. John F. Johnston, as previously stated, and formed the manufacturing pharmaceutical concern of Johnston & Lilly, in Indianapolis, in 1873. In 1876 Mr. Lilly withdrew from the firm of Johnston & Lilly and established his own business under his own name, as sole proprietor. The Johnston & Lilly establishment continued for some years under the name of John F. Johnston, but was eventually discontinued. The business of Eli Lilly prospered from the beginning and in 1878 larger quarters were secured. In 1880 it was incorporated as a stock company, the stock other than Mr. Lilly being held by his brother, James E. Lilly, and other members of the family. The growth of this and other concerns now in Indiana has been along parallel lines with the establishment and development of concerns in other States and is not particularly worthy of notice other than they may deserve no mean place in the great development of manufacturing pharmacy in the United States since the Civil War.

One accomplishment in which the Lilly concern took some satisfaction in the earlier years was the invention of the first process by which pills could be coated with gelatin without the necessity of impaling each pill on the end of a needle. This process is being shown in your historical exhibit and will not be elaborated upon here. Since then other and better methods have been devised by others and are in general use.

Another accomplishment was a line of assayed fluid extracts, being the first to be introduced under that name and a part of the small beginnings of the now

generally adopted plan of standardization. The lines covered by Indiana concerns are in concert with others of like nature, constantly broadening until including almost everything in a pharmaceutical and biological way.

The next concern to appear in Indiana along manufacturing lines was the McCoy-Howe Company, of Indianapolis, established in 1892. This concern has grown to large proportions and supplies a generous line of products to the physicians of Indiana and adjoining States. From time to time other houses have been established until to-day we have in Indiana the following active concerns:

Central Pharmacal Co., Seymour, Ind.

Lafayette Pharmacal Co., Lafayette, Ind.

Frank S. Betz Co., Hammond, Ind.

C. M. Bundy Co., Indianapolis (Specializing in compressed tablets and pills).

Pitman-Moore Company, Indianapolis (Also producers of hog cholera serum in a very large way).

Swan-Myers Company, Indianapolis.

Swan-Williamson Company, Indianapolis.

Eli Lilly & Company, Indianapolis and Greenfield.

The writer was recently delegated by Governor Goodrich, through Dr. Chas. P. Emerson, Chairman of the Medical Section of the State Council of Defense, to make a survey of the pharmaceutical and biological resources of the State of Indiana. Calling together representatives of all the houses, this survey was made and reported to the State authorities. The information secured by this survey was a revelation to even those of us who should have been informed. It is quite possible that the output of pharmaceuticals of this State is only exceeded in volume by but one other State in the Union. We discovered that the total annual output of these houses, when based on most conservative figures, exceeded anything of which we had thought—if we had thought at all. It was found that liquid preparations of various kinds were supplied in amounts approximating five million pounds annually. That in the matter of compressed tablets of various kinds and uses, the units would approach the number of dollars in the first Liberty Loan. We found an output of empty gelatin capsules exceeding a half billion, and other things in proportion. Realizing fully that quantity is not a criterion of success and usefulness, it was gratifying to find all establishments observing the latest methods of scientific standardization and a general air of enterprise and progress throughout the guild.

It would seem that this brief account of manufacturing pharmaceutical progress in Indiana would hardly be complete without the mention of the industry devoted to the collection of crude drugs. Indiana has always been a great State for ginseng and hydrastis, although the supplies of both of these have now become nearly exhausted. At Madison, Ind., Sulzer Brothers have for many years conducted a large business in this line. Their supplies come from Southern Indiana, Kentucky, Tennessee and other points south of the Ohio River. They supply not only Indiana manufacturers but those located in other States and also ship quantities abroad. It is quite possible that in this concern Indiana has the largest facilities for supplies of native drugs.

Manufacturing pharmacy in Indiana is also well supplied in the matter of alcohol, as we are in the corn belt and we have distilleries of great capacity for the manufacture of this essential solvent and preservative.

Again, we are well served in the matter of bottles, having a number of excellent plants for the manufacture of this indispensable item.

A little start has been made in the matter of drug culture, in both an experimental and commercial way.

Another factor of great importance in the development of the drug business in Indiana is the fact that since the early day the State has had an excellent system of wholesale distribution by houses in Indianapolis, Ft. Wayne, Terre Haute, Evansville, and Richmond. Today there are seven wholesale drug houses serving the retail druggists of Indiana and portions of Ohio, Illinois and Kentucky. This is a fewer number than existed in former years, but the volume of business handled is much greater and the service constantly improving.

I would not like to close this paper without a mention of some of the pioneers in the wholesale drug business, which is so closely allied and so essential to the retailer and the manufacturer.

Mr. Augustus Kiefer was one of the pioneers of the modern wholesale drug guild entering the business in 1872 in Indianapolis, and when he passed away a few years ago he left one of the most thoroughly organized institutions in the United States.

Mr. Daniel Stewart, another pioneer, came to Indianapolis in the early day from Decatur County, forming the firm of Stewart & Barry, which finally became the Daniel Stewart Company, doing business in a large and efficient manner.

Recently these two concerns have merged into the Kiefer-Stewart Company.

Another old firm in service was Ward Brothers, of Indianapolis, the surviving member of that firm being Mr. Marion Ward, now of the Mooney-Mueller-Ward Company, which concern has a large and useful plant, being a merging of the interests of Mooney-Mueller Drug Company and Ward Brothers Drug Company.

E. H. Bindley & Company and Cook, Black & Hoffman, of Terre Haute, are also pioneer houses.

Chas. Leich & Company, Evansville, date back many years and have served that section of the State and Kentucky acceptably.

A. G. Luken & Co., of Richmond, supply a certain section of Eastern Indiana and Western Ohio.

The youngest member of the guild is the Ft. Wayne Drug Company, that splendidly serves the northeast section of Indiana with portions of Ohio and Michigan.

With all of these interests working harmoniously together to serve that which is best in medicine and pharmacy, it would certainly seem that there is comparatively little left to be desired other than a continuation of scientific and commercial growth.

Altogether, those of us who have been a part of this development in our Hoosier State may possibly be pardoned for expressing a degree of satisfaction in the development of manufacturing pharmacy in Indiana in the last generation.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CINCINNATI.

Fifth Annual Report of the Secretary, Charles A. Apmeyer:

The session 1917-18 opened with a meeting held at the Cincinnati College of Pharmacy Building, October 9, 1917, President Louis Werner presided.

After the Secretary had read the full report of the May 8th meeting, the last meeting of the preceding session, and mentioning the sad bereavements this branch sustained during the interim to the opening of the 1917-18 session, all of which report was duly approved; Mr. Julius Greyer, Treasurer, made a statement regarding the financial condition of this branch, stating in part: Our branch has done a great deal of good in the past and it will do more the coming season, if sufficiently encouraged. Our meetings have been most interesting, beneficial and instructive to all who attended them, and every pharmacist, whether member of the branch or not, is welcome and should avail himself of the privilege and attend our meetings. Again—our present by-laws call for only 50 cents' dues, which are absolutely insufficient to meet even the most necessary expenses, and this is a great hindrance to the promotion of any move on the part of the officers, by which interesting and instructive material for our meetings might be secured.

At this meeting Prof. C. T. P. Fennel presented his masterly lecture on "Pharmacology—Pharmacy of Today." Prof. Fennel states that Pharmacology is really a modern term, and does not mean alone Pharmacy, but according to the Pharmaceutical Syllabus, recommended by the National Committee, representing the Boards and Schools of Pharmacy of the United States, includes Materia Medica, Botany, Chemistry, Pharmacy, Physics, Arithmetic, Latin, as well as Pharmacognosy, Toxicology, Posology and Biology, not omitting even Commercial Training in its

curriculum. Prof. Fennel expresses himself frankly as concerns the advancements and changes that have been made in the direction of pharmacy, including Pharmacology and its connection with medicine in general. He calls attention to the fact that the old time compounds have been practically displaced through the changes that have taken place in medical education. He shows how insidiously and irresistibly the practice of Pharmacy has undergone a revolution and that the pharmacists of the olden time have been practically relegated to obscurity, very few now being in a position to make a living by old-time processes and methods.

This same lecture was continued by Prof. Fennel at the November meeting, held at the Hotel Gibson. He again pointed out the danger to the pharmacist of being almost entirely alienated from his pharmaceutical manipulations and efforts, greatly due to the energetic progressive processes employed by the manufacturing pharmaceutical houses. Pharmacy is gradually drifting away from us; the medical profession has been efficient in teaching her institutions to live up to requirements; the pharmaceutical profession, however, has become so governed and legalized, either by U. S. P. or N. F. standards and National Pharmaceutical Syllabus, that these very standards set forth seem almost to be a bar to higher educational or manipulative processes, for outside of pharmacy there is not a single other science which is restricted by a legal standard.

Hon. Frank H. Freericks chose for his subject: "The New Income Tax, and the Sale, Taxation and Use of Non-Beverage and Special Denatured Alcohol." Mr. Freericks presented the provisions of the New Income Act by means of discussion, charts and questionnaire, efficiently instructing his attentive audience in the various obligations of this new law.

The principal speaker at the December meeting was Prof. Theo. D. Wetterstroem, who presented a very interesting and instructive report of Comments on the U. S. P. and N. F., same being greatly appreciated by the members.

Dr. E. P. Zeumer delivered a highly interesting lecture at the January meeting, which was held at the offices of the American Drug-gists' Fire Insurance Company. Dr. Zeumer's lecture was illustrated by stereopticon views, the subject being "The Manufacture, Preparation and Uses of Antitoxins and Serums." An abstract of this lecture was published in the JOURNAL. (See January issue JOURNAL, p. 184.)

At the February meeting your Secretary called attention to the fact that this branch now celebrates its fifth anniversary, saying: On February 12, 1913, seventeen gentlemen of the pharmaceutical profession assembled at Lloyd's Library to form a Cincinnati Branch of the A. Ph. A. The professional, the medical, the manufacturers', as well as the retail drug-gists' interests were represented, and met in an earnest desire to further the objects of the American Pharmaceutical Association, which are: To advance the science and art of pharmacy, and to improve the condition of pharmaceutical practice by stimulating research and the development of improved methods, by diffusing scientific and technical knowledge, by fostering sound pharmaceutical education, by upholding the dignity of pharmacy and demonstrating to the public its importance and the necessity as a matter of public safety, of restricting pharmaceutical practice to trained pharmacists, by extending the field of usefulness of the pharmacist to the people, by promoting the enforcement of due observance of established standards for the identity, purity and strength of medicines, by aiding in the suppression of empiricism, in the regulation of the use of dangerous and habit-forming drugs and in the protection of the public health; by maintaining respect for ethical standards in the practice of pharmacy; by promoting relations of comity and mutual respect between physicians and pharmacists; in short in all proper ways to promote the true welfare of Pharmacy and Pharmacists.

I believe that the Cincinnati branch has so far fulfilled its mission, and with the further support and endeavor of our members much good may be accomplished to the credit of

not only the Cincinnati branch but also of the parent body.

The members were instructively entertained at the March meeting by E. V. Kyser, Ph.G., whose lecture—"Importance of the American Crude Drug Industry"—was well received, and at its conclusion led to interesting discussions. Dr. Kyser says: The American Drug Flora is very large and widely distributed; there are several hundred varieties of drug plants of therapeutic value growing wild in the United States. The growing of drugs as ornaments, the cultivation of wild drugs for personal and commercial purposes has been prevalent since the early colonization. The diversity and importance of our Flora led many of the European Governments to send patrons to this country, who made explorations of our Eastern States during the latter part of the 18th and the early part of the 19th century. Among those early visitors were many eminent botanists, who contributed largely to valuable books on American plants. Their writings were on the general Flora, but contained much of interest concerning medicinal plants.

Andre Michaux, under the patronage of the French Government, during his several years of exploration sent back to Europe over 2500 specimens of trees, shrubs and plants.

Mr. Fraser, a Scotchman, under the patronage of the Russian Government, did much work on our Flora.

Mr. John Lyon, of Great Britain, was an enthusiastic collector of our plants and contributed many of our species to the English Gardens.

F. A. Michaux, son of Andre, traversed the Eastern States, the result of his work being found in his "The Forest Trees of America."

Thomas Mitchell, an Englishman, contributed largely to the discovery and elucidation of the Flora of North America.

The Standard Supply Table of the indigenous plant remedies for field and sick in General Hospitals consists of 70 drugs of recognized therapeutic value, many of which are official drugs in the present and former pharmacopoeias.

The April meeting was partly devoted to a business meeting, after which the President called upon Dr. C. T. P. Fennel, who delivered a very interesting lecture on Pharmacology, giving and enumerating the vast number of products that may be obtained

by the destructive distillation of wood, and shows how by fractional distillation at the various degrees of heat the many products are separated, such as pyroligneous acid, acetone, etc. He then took up the coal distillation, showing the formation and separation of the numerous products, such as the various bitumen pitch residues, crude oil, carboic acid, benzene, anthracene, naphthalene, etc. A very interesting part of the Doctor's lecture is the presentation of samples of the progressive distillates obtained by him.

The branch now has a membership of 58. We had the misfortune of losing one of our good members, Mr. Rudolph C. Fack, whose death occurred March 12, 1918.

A pleasing incident during the session 1917-18 is the appointment of member Dr. C. T. P. Fennel to the Professorship of Materia Medica at the University of Cincinnati.

CHAS. A. APMEYER, *Secretary*.

May 21, 1918.

The annual election of officers of the Cincinnati Branch, A. Ph. A., took place at Lloyd Library, May 21, 1918: *President*, Louis Werner; *First Vice-President*, Frank H. Freericks; *Second Vice-President*, Bertha Ott; *Treasurer*, Dr. Frank Cain; *Secretary*, Charles A. Apmeyer; *Member Executive Committee*, E. H. Thiesing.

After installation of officers a spirited discussion took place regarding the furnishing to the soldier and sailor better pharmaceutical service, of eliminating as much as possible the tin-canned medication now furnished to our forces, the possible establishment of true pharmacies at cantonments in connection with Y. M. C. A., Red Cross, Knights of Columbus, and similar humanitarian efforts, all of which discussion finally led to the adoption of the following resolution.

CHAS. A. APMEYER, *Secretary*.

Resolution offered by Mr. Frank H. Freericks at the May 1918 Meeting of the Cincinnati Branch of the A. Ph. A. and adopted by a unanimous vote:

The Cincinnati Branch of the A. Ph. A. convinced;

That, the health and life of the nations young men in the Army require medicine freshly prepared which can be supplied them only through a staff of men pharmaceutically trained;

That, the medical staff of our Army, now includes thousands of physicians taken from

civil life, whose successful treatment of disease has been dependent upon prescribing medicines extemporaneously and freshly prepared, who will be greatly hindered if confined to the use of a restricted list of so-called "Canned Medicines;"

That, The Congress seems unimpressed with the immediate need for establishing a Pharmaceutical Corps in our Army as found necessary by nearly all other Nations, possibly controlled in its lack of action by the opinion of Army Medical Men whose experience has been restricted to the use of manufactured medicines in our heretofore limited Army requirement and on that account without sufficient knowledge of the advantage, need and superiority of freshly and extemporaneously prepared medicines as secured in civil life, therefore

Resolves, to request the National Pharmaceutical Service Association, the National Association of Retail Druggists and the American Pharmaceutical Association, to confer through representatives of retail pharmacy and with officials of the organizations herein-after named upon the feasibility of establishing completely equipped pharmacies in charge of a staff of qualified pharmacists in connection with Y. M. C. A. and K. of C. Army Establishments, through the patriotic self sacrifice of pharmacists, supported by the relatives and friends of the young men now in the service of their country, to the end that they may not suffer and die for the want of proper medication and so that this voluntary experience may at once serve to satisfy the authorities of the need for complete pharmaceutical equipment and properly trained pharmacists in our Army.

DETROIT.

The regular meeting of the Detroit Branch of the American Pharmaceutical Association was called to order in the Wayne County Medical Bldg., May 17th, President Kimmich presided. The minutes of the last meeting were read and approved. A letter was read from D. J. Coleman, Ensign U. S. N. R. F. Officer in Charge United States Navy Recruiting Station, asking the Detroit Branch to assemble to meet Col. Theodore Roosevelt and to participate in the Memorial Day parade, May 30th. A motion was made that the Secretary write a letter to Dr. Coleman saying that on account of the nature of our organization that we could not participate. The

treasurer's report was read and accepted. A motion was made and carried that the secretary write a letter of thanks to Fred'k Stearns & Co., in recognition of the appreciation of the branch for their kindness in contributing the printing necessary for the year's work. A motion was made and carried that \$10.00 be given to Mr. Nelson, the steward of the Wayne County Medical Bldg., as a token of appreciation of his services. A motion was made and carried that the September meeting for the year 1918 be omitted. A motion was presented in writing by E. R. Jones that the By-Laws be amended to read "Meetings to be held from October to May of each year inclusive." Since this necessitates a changing of the By-Laws, the motion was laid on the table until the October meeting, at which time action will be taken. The Nominating Committee made the following report:

President—E. R. Jones, *Vice-President*—G. M. Schettler, *Secretary*—May Strawn, *Treasurer*—Chas. F. Mann, *Chairman of the Program Committee*—G. M. Grommet, and *Councilor*—L. A. Seltzer.

A motion was made that the report of the nominating committee be accepted. Carried. Nominations were asked from the floor and a motion was made and seconded that nominations be closed. Carried. A motion was made and carried that the rules be suspended and the secretary authorized to cast an unanimous ballot for the names as presented by the nominating committee.

A motion was made that the branch go on record as favoring the Edmonds bill and the secretary send all the representatives and senators of the state of Michigan a letter to this effect. Carried.

Miles Turpin, General Sales Agent of the Todd Protectograph Co., gave an interesting talk on check protection as carried out by the system which is put on the market by his company. The complete outfit includes a machine and special paper which protects the name of the person whose signature is appended to the check, as well as the amount to be paid. Since the laws of the United States say that a person must pay all that is above his signature on a check he called attention to the fact that a man who has a small capital needs protection even more than large concerns who can charge occasional losses to Profit & Loss. W. A. Hall, Ph.B., presented some interesting and unusual prescriptions to the members present for their comments

as to the best method of compounding. This created quite a little discussion. A motion was made and carried that a vote of thanks be extended to the speakers and that a vote of appreciation be extended to Dr. Stevens in recognition of his interest in the branch and his attendance at the meetings.

The retiring president, Mr. Kimmich, gave a short talk in appreciation of the cooperation extended to him by the members of the branch and formally turned the office over to the new president, Mr. Jones, who gave a short inaugural address.

MAY E. STRAWN, *Secretary*.

PHILADELPHIA.

The last monthly meeting of the 1917-1918 sessions of the Philadelphia Branch of the American Pharmaceutical Association was held at the Philadelphia College of Pharmacy on May 20th, with President McNeary in the chair. Due to the extent of the proposed program, business matters were hurried through and the guest of the evening, Dr. A. R. L. Dohme of Baltimore invited to explain his tentative plan for the federation of all pharmaceutical associations.

Dr. Dohme's able presentation was very well received and while many had come to listen with biased minds there was no one who found in the well-thought-out talk, anything which might be called impracticable or impossible. Before the meeting there were those who said that Arcadia was a fine place to dream about but that we were not to forget that we still live on old mother earth. These same persons after the close of the meeting argued that if the plan ever came to pass Pharmacy would probably come into its own. There is hardly the need to review Dr. Dohme's plan, since it has been given much publicity through the journals. It was very clearly pointed out by the speaker that the plan proposed was simply formulated in order to give a basis to work upon and that there would be the necessity, no doubt, of reconstructing and altering a good portion of it. A good start is a race half won was the axiom upon which the President of the A. Ph. A. worked and while he felt that it would take years for the plan to mature he had no doubt that with cooperation of all concerned the proposition could be carried out to a successful conclusion and Pharmacy through it would take a new hold on society and assume its rightful "place in the sun."

Dean Lawall, leading the discussion of the address said in part that he fully agreed with the speaker as to the need for this federation and the advantages accruing from such a step forward. He also felt that the process of amalgamation would require time and the sincere coöperation of all pharmaceutical interests. He stated that the best plan would probably be one that would not be too radical and one which would be comprehensive but which should be given plenty of time to develop. It was suggested that plans should be made for arranging to have all the associations meet at the same time and at the same place one of the next few years and in this way start things going harmoniously. The service bureau outlined by Dr. Dohme was an excellent idea, stated Dean Lawall and could be elaborated so as to include any service which might be helpful to the pharmacist. Other speakers were Dr. Sturmer, Prof. Fischelis, Dr. Stewart, Dr. Lowe, E. G. Eberle and J. W. England. Mr. England moved and E. G.

Eberle seconded that the thanks of the Branch be extended to Dr. Dohme for his excellent presentation and the motion was duly approved by a rising vote.

Professor Gershenfeld of the faculty of the Philadelphia College of Pharmacy then read a very interesting paper on "Bacteriology and Its Relation to Pharmacy." He pointed out the very important fact that pharmacists with their chemical training were better equipped as bacteriologists than the average physician and that there was a wonderful field in the practice of this science for the young pharmacist who wishes to work along professional lines. The history of the science was carefully outlined from its humble start to the limitless boundaries which it has reached at the present time. The paper was discussed by Professors Stroup and Sturmer. The meeting was probably the most successful and interesting of the season and well attended.

IVOR GRIFFITH,
Secretary.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 15.

PHILADELPHIA, May 14, 1918.

To the Members of the Council:

Motion No. 22 (Approval of Program for 1918 Annual Meeting) has received a majority of affirmative votes. The Committee on Program asks that the Council Meeting scheduled for 7.00 P.M., Thursday be changed to 5.00 P.M., and the second general session of the Association be changed from 8.00 P.M. to 8.15 P.M. This will give time for an illustrated lecture by Dr. H. H. Rusby, entitled "The Indications of Medicinal and Poisonous Properties in Plants" at 7.30 P.M. to 8.15 P.M. If there are no objections these changes in the program will be made.

Motion No. 23 (Election of Members: applications Nos. 115 to 133 inclusive) has received a majority of affirmative votes.

Motion No. 24 (Approval of Award of a Joseph P. Remington Medal by New York Branch). Moved by Jeannot Hostmann, seconded by H. V. Arny, that the Council grant the request of the New York Branch for the consent and moral support of the parent organization in the awarding of the proposed Joseph P. Remington Medal (C. L. No. 14).

Motion No. 25 (Election of Members). You

are requested to vote on the following applications for membership:

- No. 134. Paul Hapke, U. S. S. Brooklyn, care Postmaster, San Francisco, Cal., rec. by Wm. B. Day and J. F. Rupert.
- No. 135. Edmund D. Pinter, 100 Danforth Ave., Jersey City, N. J., rec. by Hugo H. Schaefer and Wm. B. Day.
- No. 136. Charles J. Chapman, 62 Maiden Lane, New York City, N. Y., rec. by Hugo H. Schaefer and Wm. B. Day.
- No. 137. John F. Matthes, 14 N. Franklin Street, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 138. M. M. Taylor, 602 Franklin Street, Tampa, Fla., rec. by Ernest Berger and Wm. B. Day.
- No. 139. Brna Clifford Goodhart, 239 S. 11th Street (Locust), Phila., Pa., rec. by Franklin M. Apple and W. Wilson McNeary.
- No. 140. Oscar Dowling, La. State Board of Health, New Orleans, La., rec. by R. F. Grace and Edw. H. Walsdorf.
- No. 141. Oscar Baker Elmer, 540 Magazine Street, New Orleans, La., rec. by R. F. Grace and Adam Wirth.

- No. 142. Earl A. Means, 281 Greene Ave., Brooklyn, N. Y., rec. by Hugo H. Schaefer and Turner Currens.
- No. 143. William R. Jackson, 281 Greene Ave., Brooklyn, N. Y., rec. by Hugo H. Schaefer and Turner Currens.
- No. 144. Antonio Gavalda y Milanes, 38 Marti, Artemisa, Cuba, rec. by Jose G. Diaz and Jose P. Alacan.

J. W. ENGLAND,

415 N. 33RD STREET.

Secretary.

Treasurer Whelpley submits the following data: *Resigned since April 2, 1918:* Mrs. A. P. Clark, 124 S. Beach St., Daytona, Fla.; A. L. Stroup, 1436 Cypress St., Pueblo, Colo.; J. C. Palmer, The Dalles, Ore.; B. C. Steves, 48 W. 130th St., New York, N. Y.; and A. E. Lathrop, P. O. Block, Main Street, Simsbury, Ct.

A. PH. A. COUNCIL LETTER NO. 16.

PHILADELPHIA, June 1, 1918.

To the Members of the Council:

Motions No. 24 (Approval of Award of Joseph P. Remington Medal by New York Branch) and No. 25 (Election of Members; applications Nos. 134 to 144 inclusive) have each received a majority of affirmative votes.

Motion No. 26 (Election of Members). You are requested to vote on the following applications for membership:

- No. 145. José E. Fernandez y Valdez, Santa Clara, Cuba, rec. by Philip Asher and Wm. B. Day.
- No. 146. W. Clifford Raynor, Westhampton, N. Y., rec. by William C. Anderson and Archie P. Lohness.
- No. 147. George Casper Deffaa, 168 East 66th Street, N. Y. City, N. Y., rec. by Hugo H. Schaefer and Jeannot Hostmann.
- No. 148. Grace Irene Harper, 19 W. 101st Street, New York, N. Y., rec. by H. V. Army and May Agnes O. C. Davis.
- No. 149. Mendel Zagat, Prospect Ave. and 156th Street, Bronx, New York, N. Y., rec. by Hugo H. Schaefer and Jeannot Hostmann.
- No. 150. George W. Pegg, 113 W. 18th Street, New York, N. Y., rec. by L. E. Warren and W. S. Hubbard.
- No. 151. Conrad Edward Langfield, Northville, Mich., rec. by Frank L. McCartney and Turner F. Currens.

- No. 152. Morris Adoff, 546 Claremont Parkway, Bronx, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 153. Max Bergman, 1570 Bathgate Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 154. Isaac Berniker, 1735 Washington Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 155. Benjamin Billig, 4003 Third Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 156. James Cecaletto, 301 East 150th Street, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 157. Simon Doniger, 79 Sherman Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 158. Irving A. Edelstein, 1728 Crotona Park East, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 159. Bernard Eohs, 2403 Walton Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 160. Isadore Flomenbaum, 1129 Vyse Ave., Bronx, N. Y. City, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 161. Henry Frank, 2071 Vyse Ave., Bronx, N. Y. City, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 162. Louis Friedman, 668 Teuton Ave., Bronx, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 163. Joseph Greenberg, 1047 Teller Ave., New York City, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 164. Samuel Morriss Goodman, 131 Spruce Street, Newark, N. J., rec. by Jacob Diner and Gustave Horstman.
- No. 165. Max M. Hager, 1484 Hoe Ave., Bronx, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 166. Max Heinovitch, 1078 Stebbins Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.

- No. 167. David Israel, 1037 Teller Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 168. Joseph Robert Kerr, 500 W. 172nd Street, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 169. Julius Kerr, 500 W. 172nd Street, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 170. Nathan Kerr, 850 E. 150th Street, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 171. Alexander Kornfield, 1065 Morris Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 172. Bruno Kanders Kuhe, 821 Cauldwell Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 173. John D. Lore, 333 Second Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 174. David R. Mantell, 71 East 121st Street, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 175. Max Matlin, 2257—2nd Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 176. Bernard Miller, 178 Brook Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 177. Jacob B. Moonves, 1426 Stebbins Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 178. Eugene Nagin, 609 East 170th Street, Bronx, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 179. Eugene Tracy O'Kane, 299 Willis Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 180. Julius M. Pakchar, 367 South 2nd Street, Brooklyn, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 181. John Paolandonis, 310 Gilbert Street, Utica, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 182. Lawrence E. Pedroni, 1636 Melville Street, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 183. Oreste Petretti, 557 Fordham Road, Bronx, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 184. Harry Rabinowitz, 364 E. 4th Street, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 185. Naftul-Herz RiaCoy, 1525 Washington Ave., Bronx, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 186. Flower H. Reige, 77 Van Duzer Street, Tompkinsville, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 187. Abraham Solomon, 14 West 115th Street, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 188. Joseph Shapiro, 160 W. 119th Street, cr. Licker, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 189. Charles Shavel, 204 Columbia Street, Brooklyn, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 190. Joseph Samsonoff, 1489 Vyse Ave., New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 191. Charles Silkes, 85 Attorney Street, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 192. Samuel Stein, 855 Home Street, Bronx, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 193. Sidney Weinstock, 879 Freeman Street, Bronx, New York, N. Y., rec. by Jacob Diner and Gustave Horstman.
- No. 194. William M. Smith, 1720 Green Street, Philadelphia, Pa., rec. by W. W. McNeary and Ivor Griffith.
- No. 195. Andrew Maguire, 6543 Sheridan Road, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 196. Roth Eardon Weiner, 413 Charles Street, Mt. Oliver, Pittsburg, Pa., rec. by J. A. Koch and F. J. Blumenschein.
- No. 197. Edwin A. Brown, 101 West 3rd Street, Winoma, Minn., rec. by C. H. Rogers and F. J. Wulling.

- No. 198. James Lewis Hughes, 2108 1st Ave., Birmingham, Ala., rec. by J. W. England and E. G. Eberle.
- No. 199. William Jackson Adams, 1901—2nd Ave., Birmingham, Ala., rec. by J. W. England and E. G. Eberle.
- No. 200. Jonathan Schmitter, Gypsum, Kansas, rec. by L. D. Havenhill and C. M. Sterling.
- No. 201. Gillis Q. Lake, 6th and Minnesota Streets, Kansas City, Kans., rec. by J. S. Chism and Wm. B. Day.
- No. 202. Frank W. Kraemer, 5969 South Boulevard, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 203. William Leonard Friedman, 1833 N. 20th Street, Philadelphia, Pa., rec. by Charles H. LaWall and Louis Gershenfeld.
- No. 204. Jacob A. Topf, 2000 Larrabee Street, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- J. W. ENGLAND,
Secretary.
- 415 N. 33RD STREET.
-
- Treasurer H. M. Whelpley reported the following as of "Unknown residence:"
- Allande, Armand J., Hammond, Louisiana.
- Berkenketter, Gerhard F., Hamill, South Dakota.
- Berry, Everly N., 116 Main St., Twin Falls, Idaho.
- Dunphy, Richard M., U. S. S. Castine, Vera Cruz, Mexico.
- Fitzsimmons, George E., 1045 Lexington Ave., New York, N. Y.
- Forbing, John W., 2435 Brown St., Omaha, Nebraska.
- Guenther, Harry F. J., Baylor Univ. College of Med., Dallas, Texas.
- Hammer, James F., Recruit Depot, Ft. McDowell, Calif.
- Harris, Samuel J., Sgt. H. C., U. S. A., 3131 Wash. St., San Francisco, Cal.
- Pigott, John E., Flowers, Mississippi.
- Roman, Miguel A., 630 S. Ashland Ave., Chicago, Ill.
- Schlosser, Roy B., 650 W. Franklin St., Baltimore, Md.
- Schulz, Emiel, Sgt. 1st Cl H. C., U. S. A., Reg. Hosp., Marfa, Texas.
- Stewart, Harry E., Box 1090a, Jacksonville, Fla.
- Thoroman, Ralph R., 3912 Calumet Ave., Chicago, Ill.
- Zuck, F. J., 1028 Missouri St., Lawrence, Kans.
- Peczoz, Joseph, 419 Hancock Ave., Bridgeport, Ct.

CORRESPONDENCE

ST. LOUIS, MO., May 25, 1918.

THE EDITOR:

Your postal of the 21st inst. was received. The amount of \$5,369.49 charged to Year Book No. 4 should have been for Year Book No. 3 and Year Book No. 4.

The amounts are as follows:

| | |
|------------------------|------------|
| Year Book, Vol. 3..... | \$2,456.98 |
| Year Book, Vol. 4..... | 2,912.51 |
| Total..... | \$5,369.49 |

(Signed)

H. M. WHELPLEY,

Treasurer of A. Ph. A.

W. B. DAY, *General Secretary.*

The above has reference to the second line on p. 482, May issue of the JOURNAL, of the Treasurer's Report, and to the fifth line from bottom of same page.

DRAFT BOARDS DETERMINE CLASSIFICATION.

THE EDITOR:

As you may know, the question of the increasing depletion of the ranks of pharmacists by the draft and the consequent diminution of pharmaceutical service to the civilian public has a number of times been brought to the attention of officials at Washington with the suggestion that drafted pharmacists be put into Class V. Provost Marshal General E. H. Crowder

has made statements relating to the matter to the effect that under the Selective Service Regulations there is no authority to grant deferred classification, except by the application of the rules for classification by the local and district boards. General Crowder further stated that the district boards have exclusive original jurisdiction to hear and determine all questions on claims for deferred classification by or in respect of persons engaged in industries found to be necessary to the maintenance of the military establishment or the effective operation of the military forces or the maintenance of the national interests during the emergency. The General does not attempt to define a necessary enterprise. He states that what might be a necessary enterprise for one locality might not be for another, and confusion and error would likely arise if a general attempt were made to prescribe what are and what are not necessary enterprises within the meaning of the Selective Service Regulations.

You will note, therefore, that the local and the district draft boards have the power to determine in individual cases whether or not a drafted pharmacist should be placed in a deferred classification. It occurs to me in this connection to suggest that this information should be given the widest publicity among pharmacists and I think it would be entirely proper for you to publish a statement covering this matter in the next issue of the JOURNAL. It cannot be considered unpatriotic to urge this matter upon the attention of pharmacists because there are many cases in which entire communities have been deprived of pharmaceutical service. The Government surely does not want this to be so, especially in view of the fact that the many pharmacists who are in actual service, are not recognized as anything else than privates or at most master sergeants.

(Signed)

FREDERICK J. WULLING.

THE PHARMACIST IN THE ARMY MEDICAL DEPARTMENT.*

TO THE EDITOR (JOURNAL A. M. A.):

There seems to be a well-defined attitude toward pharmacists in the Army—that of almost completely ignoring their professional distinction, along with an amazing indifference as to their proper place and utilization. Needless to say, such a policy results not only lamentably as regards the pharmacist's status in the Army, but his professional value is lost to the Medical Department.

It is also quite apparent that since modern war machines are essentially and thoroughly businesslike in structure and character, modern methods must be employed to achieve success. It is therefore logical and imperative that every branch and wing of that complex machine be conducted on the modern principle of specialization. The trained man, the specialist, was never more desirable, never before absolutely indispensable. Such a principle is the very backbone of all modern institutions, and invariably spells success. Division of labor and centralized effort are built, supported and owe their existence to the specialist—the trained man.

The pharmacist is a specialist, trained in a part of medical science that cannot be ignored without affecting the efficiency of the Medical Department as a whole. A pharmacist's business ability to buy and distribute should be taken advantage of in medical supply depots. His experience would help to correct mistakes in buying and avoid improper packing for distribution of such supplies. This part cannot be emphasized too strongly, since it would effect an enormous economy hardly ever appreciated by non-professionals. Likewise, a pharmacist would be invaluable at large base hospitals, and his recognition becomes imperative when the dangers of the improper compounding of prescriptions by non-trained men are fully realized.

Aside from sentimental considerations for the pharmacist as an underpaid, neglected professional, his recognition is dictated by common sense and cannot fail to justify itself from a business and economical standpoint. Never would such a step be more timely, never was it more obvious and desirable. Indicating criticism of the present system of the neglected pharmaceutical branch of the Medical Department could be easily brought to light. The method of packing for distribution could be pointed at as wasteful, which a professional eye could readily detect and condemn. Immense savings could be gained even in the small Army dispensaries were the business end of medical supplies placed in the hands of the logical man—the pharmacist. As for prescriptions, their importance and the skill required for their preparation cannot be overlooked.

* Reprinted from the Correspondence Columns, *Journal A. M. A.*, May 25, 1918, p. 1562.

The idea that a bright private could be taught to perform the few simple operations is not only fallacious but also fraught with dangers.

Perhaps the following incident will serve to illustrate the folly of just such a belief: At an examination for promotion to the grade of sergeant, the aspirant was asked what a "C. C. pill" is. "Any pill containing one cubic centimeter," was his immediate reply. Another applicant was asked how to administer a Seidlitz powder. "Place the powder on the patient's tongue and wash it down with water," was his answer.

Pharmacy is a science—as exacting and important as the science of surgery—and a pharmacist's place should be second only to that of the surgeon. Are civilians more entitled to protection against mistakes of unskilled hands than soldiers?

ALBERT WHITE,
Post Dispensary, Corozal, C. Z.

MILITARY INSTRUCTION FOR COLLEGE STUDENTS.

To the Presidents of all Institutions of Collegiate Grade:

In order to provide military instruction for the college students of the country during the present emergency, a comprehensive plan will be put in effect by the War Department, beginning with the next college year, in September 1918. The details remain to be worked out, but in general the plan will be as follows:

Military instruction under officers and non-commissioned officers of the Army will be provided in every institution of college grade, which enrolls for the instruction of 100 or more able-bodied students over the age of eighteen. The necessary military equipment will, so far as possible, be provided by the Government. There will be created a military training unit in each institution. Enlistment will be purely voluntary, but all students over the age of eighteen will be encouraged to enlist. The enlistment will constitute the student members of the Army of the United States, liable to active duty at the call of the President. It will, however, be the policy of the Government not to call the members of the training units to active duty until they have reached the age of twenty-one, unless urgent military necessity compels an earlier call. Students under eighteen and, therefore, not legally eligible for enlistment, will be encouraged to enroll in the training units. Provision will be made for co-ordinating the Reserve Officers' Training Corps system, which exists in about one-third of the collegiate institutions, with this broader plan.

This new policy aims to accomplish a twofold object: first, to develop as a great military asset the large body of young men in the colleges; and second, to prevent unnecessary and wasteful depletion of the colleges through indiscriminate volunteering, by offering to the students a definite and immediate military status.

Later announcement will be made of the details of the new system. In the meantime, presidents of collegiate institutions are requested to call this matter to the attention of all their students. Those who do not graduate this Spring should be urged to continue their education and take advantage of this opportunity to serve the Nation.

I trust that the policy above stated will have your support and cooperation.

(Signed)

NEWTON D. BAKER,

Dated May 8, 1918

Secretary of War.

POSTPONEMENT OF EXAMINATION FOR FAIRCHILD SCHOLARSHIP SCHEDULED FOR JUNE 25, 1918.

In order to establish a plan of award for the Fairchild Scholarship in line with recommendations which should receive further consideration by the Committee, I hereby give notice of postponement of such examination scheduled for June 25, 1918. Decision will be withheld until the A. Ph. A. Convention, at which time a meeting of said Committee will be held. At latest, announcement will be made September 1, and Scholarship awarded by October 1, 1918.

Other members of the Committee are:

R. A. LYMAN, Lincoln, Neb.

J. W. STURMER, Philadelphia, Pa.

GEO. C. DIEKMAN, New York.

H. C. CHRISTENSEN, *Chairman,*

Committee on Examination for Fairchild Scholarship,

4149 Vincennes St., Chicago, Ill.

(See also page 577.)

COMMITTEE REPORTS

REPORT OF COMMITTEE ON PATENTS AND TRADE MARKS.*

In accordance with the request of the Association, your committee has revised the United States copyright, patent and trade mark laws in so far as they specially apply to pharmacy and pharmaceutical chemistry, and herewith presents the proposed revision for your consideration and discussion.

The reason why you have asked your committee to make this proposed revision is for the purpose of eliminating certain objectionable features pertaining to these laws, relating either to the laws themselves or to their interpretation and application by the courts. The objectionable features referred to are as follows:

1. The copyright and patent laws, as they now exist or are interpreted or applied, fail in securing their object as defined in the Constitution of the United States, Article I, Section 8, Clause 8, which clearly states that the object of the copyright and patent laws is to promote progress in science and useful arts by granting to authors and inventors for limited times exclusive right to their respective writings and discoveries. It is contended that these laws, as they now exist, or are interpreted or applied, are a hindrance to progress in the arts of pharmacy and pharmaceutical chemistry for reasons hereinafter to be stated.

2. The trade mark law is not founded upon the clause of the Constitution serving as the foundation for the copyright and patent laws. As stated by the Report of the Commissioners Appointed to Revise the Statutes Relating to Patents, Trade and Other Marks, and Trade and Commercial Names under Act of Congress approved June 4, 1898, and published as Senate Document No. 20, 56th Congress, second session, printed by the Government printing office, Washington 1900, page 97. "It was supposed that the power of Congress to provide for the registration and protection of trademarks was derived from the clause of Section 8 of Article I of the Constitution, which provides for the promotion of 'the progress of Science and Useful Arts by securing for limited Times to Authors and Inventors the exclusive Right to their Respective Writings and Discoveries.' Nowhere in the discussion is found any reference to the clause of Section 8, which gives Congress the power 'to regulate Commerce with foreign Nations and among the several States and with the Indian Tribes.' So far as appears from the discussion of the bill, trademarks were regarded as analogous to patents and copyrights and their relation and importance to commerce appear to have been little understood."

Referring to the discussion of the Supreme Court in the trade mark cases, the same authority, page 100, says: "Criminal prosecutions being had under the statutes of 1870 and 1876 in the southern district of New York and the southern district of Ohio, and a difference of opinion having been certified to the Supreme Court on the question whether these acts of Congress on the subject of trade marks were founded on any rightful authority in the Constitution of the United States, the cases came before the court for review at the October term of 1879. (Trademark Cases, 100 U. S., 82.) The court showed with admirable clearness that because of the distinction between patents and copyrights and trademarks, pointed out in the decision, the power of Congress to enact the law could not be derived from that paragraph of Article I, Section 8, of the Constitution which relates to authors and inventors, since the right of ownership in trademarks is created by adoption and not by authorship or invention."

"A trademark," according to the same authority, "may consist of a name, symbol, figure, letter, form or device." "It is generally considered that a mark to be effective for its purpose should be as simple and striking as possible, should either consist of or have as a prominent feature some representation or word which will be readily caught by the eye of the purchaser and retained in his memory, so that when he comes to make a second purchase he will look for and readily recognize that particular mark. Such trade mark is, for instance, the representation of a star, an anchor, crescent, crown, cross, diamond, seal, triangle, or the word 'star,' 'arrow,' etc."

* Presented during the first session of the Section on Education and Legislation, Indianapolis meeting, August 29, 1917, by Chairman F. E. Stewart. After discussion, the report was referred to the General Session of the Association

"The representation of a star or the word 'star' has been registered in the United States Patent Office as a trademark for nearly every recognized class of goods, having been registered nearly 400 times, indicating that, leaving out of consideration registrations to the same owner, made necessary by a change in the law, several hundred manufacturers and dealers have adopted and used that mark on some class of goods. In about 150 instances, the representation of an anchor or the word "anchor" has been registered.

"It will of course be understood that a star or an anchor or any other mark may be used by manufacturers of or dealers in different classes of goods without conflict. For instance, the use of a star as a mark for tobacco does not conflict with the use of a star as a mark for matches or dress braid. It is only when two persons put upon the market goods of the same class bearing the same mark that confusion in the mind of the public is liable to be caused or purchasers are deceived."

It is perfectly apparent from these quotations that in dealing with the subject of trade marks we have under consideration something entirely different than that of copyright and patent. It is objected that the trade mark is being deliberately diverted from its lawful purpose and that the trade mark law is being stretched to cover the same ground as the patent law with the idea of substituting the trade mark system of registration for the patent system, for the purpose of obtaining privileges not to be secured under the patent law and protecting and fostering unfair competition. It is therefore urged that the trade mark law shall be so revised as to prevent this abuse.

3. Another objectionable feature which pertains more particularly to the patent law is, that foreign countries are permitted to patent their inventions in the United States without being obliged to manufacture them in this country. Consequently, the United States patent laws are being used by foreign nations to build up commerce in their own countries to the injury of the United States. This objection might be obviated under treaties whereby foreign nations would grant to the United States the privilege of permitting American inventors to patent their inventions in foreign countries and manufacture them in this country—in other words, foreign nations should grant us the same privileges we grant them.

4. Quoting again from Senate Document No. 20, "Under the United States patent law no class of inventions is excluded from protection. The same is true of Great Britain and the British colonies generally. But many foreign countries exclude from protection one or more classes of inventions. The class of inventions which more than any other is excluded from patent protection is that relating to medicines. It is excluded in Germany, France, Austria-Hungary, Italy, Japan, Denmark, Norway, Sweden, Portugal, Russia and a number of other countries. Other classes of inventions excluded from protection in many countries are foods, chemical products and inventions relating to war material."

"Exclusion from protection of inventions relating to medicines or foods does not generally extend to those relating to processes or apparatus for their manufacture. In all foreign countries which exclude chemical products from protection, except Switzerland, inventions relating to chemical processes may be patented and in nearly all such countries it is expressly provided by law that a patent for a chemical process by which a new chemical product is made shall in fact cover such product unless it is shown that such product was in fact made by some other process.

"It has been urged before us, both at the hearings above referred to and in written communications laid before us that the United States law should be amended to exclude from patent protection both medicines and chemical products generally, at least so far as such inventions are the inventions of subjects or citizens of the foreign countries which exclude these classes of inventions from patent protection, and it has been contended that subjects or citizens of foreign countries should not be permitted to receive in this country patents for inventions which are not patentable in their countries."

5. It is claimed by the objectors that it is to the benefit of the entire community that the practice of pharmaceutical and pharmaco-chemical arts should be conducted in harmony with the scientific and professional requirements pertaining to the educational system of the country, so that coöperation may be secured between educational and commercial interests in promoting progress in science and in the useful arts; and that no system which permits individuals, firms or corporations, to exercise ownership or control over the names or articles of commerce can receive the sanction of the educational institutions of the country. The exercise of such ownership is a

menace to the entire educational system of the country which is apparent when the following facts are considered:

Every article of commerce must have a name of its own whereby it may be manufactured and dealt in, and that if such name is subjected to individual ownership then the educational machinery of the country becomes a great advertising bureau for the exploitation of commercially controlled products. Furthermore, as the information concerning these products appearing in advertisements is necessarily biased, the educational machinery of the country also becomes the means of teaching error, and, in the case of medicines, exploiting the sick room for gain.

6. It is further objected that the conditions now existing not only prevent coöperation between the educational and industrial institutions of the country, but also inculcate ill feeling, hypocrisy and deceit in the relations existing between the professional men and the manufacturers and merchants; between the scientists on the one hand and those who are utilizing the discoveries made by scientists for promoting the industries of the country. This is well illustrated by a statement made by Dr. W. W. Keen of Philadelphia, in a letter on the subject of so-called "ambrine," published in the *Philadelphia Ledger*, February 25, 1917.

Dr. Keen says, in the letter referred to: "In spite of a high opinion of this new and evidently successful treatment, I have a very serious criticism to make. Medicine is a profession not a trade. New methods of treatment, new drugs, new instruments, devised, discovered or invented by instrument makers or any other persons other than doctors, may be freely patented in order to reimburse and reward the inventor. But such methods, instruments, drugs, etc., devised, discovered or invented by doctors, our profession holds should be freely given to the world. A patient burned in Tokyo, Cape Town, Buenos Ayres, or Philadelphia should have all the advantages of such a beneficent discovery instantly and not have to send to Paris for it or go without. Such professional knowledge we hold should be at the service of humanity everywhere. The doctor gains his pecuniary reward from a larger reputation and a wider clientele. Besides this, his personal joy in so benefiting humanity is an incalculable reward."

It is claimed by the objectors that the position taken by Dr. Keen in this matter is the position taken by the medical profession throughout the world, and yet the medical journals are obtaining an enormous income from advertising these same commercially controlled products and if they are successful are obtaining an income and reputation by so doing, and therefore the position of the medical profession on the subject is very inconsistent to say the least.

It is not the province of your committee to condemn the medical profession for their ethics because the position of the profession on the subject is undoubtedly sound. Neither is it our province to condemn the profession for the ethical lapse referred to. However, as pharmacy is a part of medicine, and physicians and pharmacists are necessarily mutually dependent in relation to the preparation of medicines and their proper use in the treatment of the sick, pharmacists have a right to expect that the medical profession will not disregard its fraternal relations.

It is not our province to condemn the manufacturers of medicinal products who avail themselves of the privileges of our patent law or take advantage of the misunderstanding relating to the trademark law, but it is the province of your committee to point out these conditions so that you may, as an Association, be placed in position to consider intelligently the proposed revision of the copyright, patent and trade mark laws we are placing before you for discussion.

Your committee has published in the *JOURNAL* of the Association, the proposed revision of these laws, and preambles and resolutions containing evidence in support of our suggestions in relation to the proposed revision. We are now placing in your hands reprints of the same that you may have the matter before you in the proper shape for consideration.

Your committee in making its suggestions as to the revision of the copyright, patent and trade mark laws has added to the laws as they now read, certain sentences, paragraphs and sections intended to overcome the objections above enumerated.

1. We have added to all three of these laws a paragraph in conformity with circular No. 19, issued by the Librarian of Congress stating that no copyright shall subsist in coined names, names of articles of manufacture, names of games or puzzles, names of substances, names or products or names of medicines.

2. We have made it necessary for the applicant desiring a patent relating to a chemical substance, medicine or food, to provide such product with a distinct name which will afterwards be

used by him, his executors, administrators and assigns as the principal title thereof on all labels, in all advertisements and in all literature relating to the product. We have also added a similar requirement to the trade mark law to prevent the registration of a trade mark for new articles of manufacture, chemical substances, medicines or foods, unless a distinctive name shall accompany the application in each instance, for use of those who would compete in manufacturing and vending the same article and also for the use of the public in purchasing same.

3. We have provided that the manufacturer of a patented product shall continue to produce the product by the patented process during the life of the patent and by no other process unless he shall apply for patent for same, and in case patent is granted for a new process he shall announce the fact in at least three prominent medical and pharmaceutical journals, respectively, calling attention to the new process and giving the number and date of patent thereof. The reason for this is obvious and will be apparent to anyone who has had any dealings with the methods sometimes employed by manufacturers of patented products.

4. We have proposed a section as an addition to the patent law containing a similar proviso to that contained in the copyright law relating to alien inventors, which we believe will exclude from patent protection inventions of subjects or citizens of foreign countries which do not grant similar patent privileges to the citizens of the United States. We have been informed that the section taken from the copyright law, which we have modified for the purpose, was written by the late president, Taft, whose knowledge of international law gives him a position of acknowledged authority.

5. We have suggested appropriate sections to cover the objection relating to the limitation of patent privileges, using for that purpose sections from the German patent law. The special paragraphs to which we wish to call your attention read as follows: * * * *

"No patent shall subsist for, inventions relating to articles of food, or medicines, as also substances prepared by chemical processes in so far as the inventions do not relate to a definite process or apparatus."

"If the invention relates to a process for the production of a new substance, all substances of the same chemical composition are considered as having been made by the patented process until proof to the contrary is given to the Commissioner of Patents."

6. As stated in our brief, your committee favors an amendment to the patent law requiring the Commissioner of Patents to submit all applications for patents relating to medicine and dietetics to the Committee of Revision of the United States Pharmacopoeia for approval before granting the same.

Professor Remington objects to this suggestion thinking it will throw too much work on the Committee for revising the Pharmacopoeia. However, your committee does not insist on this but believes that applications for patents relating to medicines and chemical substances should be referred to some kind of a committee or commission representing the medical, pharmaceutical and chemical professions, before such patents are granted. When you consider that a patent was recently granted for flavoring solution of epsom salts with peppermint and other essential oils, it is very apparent that there is, at present at least, no one connected with the United States Patent Office sufficiently qualified to decide what is meant by a "*new and useful invention*" in the meaning of the patent law, in so far as medicine, pharmacy and chemistry are concerned.

DISCUSSION.¹

J. M. FRANCIS: What bearing has the proposed resolution upon the matter of process patents? What policy does the committee advocate?

F. E. STEWART: The solution of the problem in regard to product patents is contained in a provision of the German patent law which you will find in the proposed revision of the United States patent law suggested by your Committee and published as part of your committee's report in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, April 1917, under the head "Preambles and Resolutions Relating to Revision of the U. S. Copyright and Patent Laws." I hold a reprint of this portion of the report in my hand.

¹ Discussions are reported in full instead of in abstract, as both sides of the question are thereby more clearly brought to the attention of the readers and for their consideration.

The provision to which I refer is as follows: "No patent shall subsist for * * * * * inventions relating to articles of food or medicines as also substances prepared by chemical processes in so far as the inventions do not relate to a definite process or apparatus for the preparation thereof." "If the invention relates to a process for the production of a new substance, all substances of the same chemical composition are considered as having been made by the patented process until proof to the contrary is given." The object of this proviso is to promote research for the purpose of stimulating inventors to investigate patented processes for the purpose of improving them during the life of the original inventors' patent, so that when an improved process is discovered whereby the same product may be produced at less cost or of better quality, the public may have the benefit of it without awaiting the expiration of the original patent, which, according to our patent law, continues for seventeen years. The proviso is also intended to protect the original inventor from unfair competition. No person can enter the field without proving that his alleged improvement of the inventor's patented process is sufficiently valuable to warrant the Government granting him the right to compete with the original inventor. The burden of proof is upon him.

It is urged by those who oppose any change in our patent law in relation to product patents, that such a proviso as that contained in the German patent law is not workable in the United States because of a difference in our method of jurisprudence. Under our system of jurisprudence a person must be considered innocent until he is proved guilty, therefore, say the objectors, unless the product itself is so covered by patent that no person is permitted to enter the field in competition, no matter how great his improvement of the original process, an injustice would be done to the original patentee for the reason that the burden of proof would be thrown upon the defendant. There would be no way for the Government officials to find out whether the person claiming to have made an improvement had made such in fact, because his laboratories would not be open to the inspection of Government officials. He would therefore be in position to appropriate the original patented process and employ it in producing the same products, as there would be no way of proving infringement because the inventor of the alleged improvement could claim that his process was his trade secret and that no one had any right to enter his laboratory and prove to the contrary.

I took this matter up with one of the commissioners of the Patent Office and he laughed at the objection as absurd. He agreed with the suggestion made to the chairman of your committee, by the head of one of the large German chemical houses. This gentleman suggested that the United States patent law should be so revised as to make it incumbent upon the alleged inventor of an alleged new process to apply for a patent upon same before being allowed to use it commercially. This would place the Commissioner of Patents in position to pronounce upon the validity of the claim made by the alleged inventor of a new process for producing a patented product.

It has also been suggested that our patent law should be not only changed in such a manner as to conform with the proviso of the German patent law, but also that a provision should be added requiring that the inventor of an improved process for manufacturing a product already patented, should be forced to pay a royalty to the original inventor during the life of the original patent. It was pointed out that the original inventor blazed the way for others to follow and that it is no more than fair to reward him for his pioneer work in this manner.

Your committee in a footnote which you will find at the bottom of page 405, *JOUR. A. PH. A.*, April 1917, stated: "The Committee believes that all ambiguity now existing in the law should be removed in the revision. Provision should also be made in the law so that the inventor of a new process can secure a royalty from the original patentee."

One of the reasons why your committee suggested that the proviso of the German patent law referred to should be introduced into the patent law of the United States is as follows: The object of the patent law is to promote progress in science and useful arts—in this instance in the science of medicine and in the useful arts of pharmaceutical chemistry and therapeutics. This it seeks to do by granting to inventors, for limited times, the right to prevent others copying their inventions, in exchange for the publication of full knowledge thereof whereby others may use the inventions freely for commercial purposes when the patents expire.

Cooperation between the educational and commercial institutions of the country is essential to promoting progress in science and the arts. Cooperation can never be secured between the

educational institutions teaching medicine and the commercial interests supplying materia medica products under a system of monopoly of the kind protected in this country by the patent law. The German government realized the necessity of leaving materia medica and food products open to competition so as to secure the necessary coöperation between the medical profession and its institutions of learning and the producers of materia medica products. It therefore limited the patents to processes only, leaving the products themselves open to competition in the manner already described.

The German patent law separates inventions relating to medicines and foods from other inventions because of humanitarian reasons which we in this country do not seem to recognize properly in this connection. It is because we do not recognize this humanitarian ideal of professional practice that we pharmacists and chemists are criticized by the medical profession, philanthropists and political economists. We are accused of exploiting the sick room for gain and spending our time in the endeavor to see how much money we can make out of a sick man.

In the American Therapeutic Society we have a by-law that no paper may be read or discussed concerning a commercially controlled materia medica product except to condemn it. This by-law was passed to protect the Society and thus protect the public from commercial exploitation by the representatives of commercial interests, who may come to its meetings for the purpose of reading papers advocating the use of monopolized materia medica products. If we expect to obtain the coöperation of educational interests of the country in promoting progress in the science of materia medica and in the useful arts of producing materia medica products and applying them to the treatment of the sick, it is absolutely necessary that we give proper attention to necessary professional and scientific requirements.

J. M. FRANCIS: There is no doubt that this committee has devoted a great deal of attention to this subject, and I want as an individual to do them all honor in saying, I think they are absolutely conscientious in these recommendations. However, this is a country in which everyone is allowed to indulge in his own opinions, and give his reasons therefor. There are some things in the recommendation of this committee I approve of most heartily. There are some that reflect a great deal of human nature. It is very natural that an American should demand for his own people the same privileges abroad, that the subjects of a foreign country receive from our government institutions. It is very natural to say that if a French patent is issued in the United States that we should force the French patentee to manufacture that product in the United States, because the French government would adopt the same procedure in the case of an American who obtained a patent in France. It is not upon this portion of the recommendation, however, that I wanted to speak to you, but I do want you to consider some phases of this matter very carefully, because I believe that the members of the American Pharmaceutical Association are eminently fair, and I do not think that we want to take any hasty action—we do not want to be stampeded. I should very much regret to see the influence of this great national association thrown to the advocacy of a course of procedure which I think would be very unjust. Now, please remember that the policy adopted by this committee, if allowed to pursue its normal course, looks to the support of this Association, which will finally and in the form of a recommendation to Congress, revise the present patent laws.

There is one feature I want to discuss particularly, and that refers to the granting of PRODUCT PATENTS. I am not going to touch on the copyright phase of the matter, because that is a matter of less importance. According to the Constitution, or the sections that were quoted, the ideas embodied therein were very broad and patriotic, that a man should enjoy the results of his own ingenuity or labor, that he should receive proper returns, and a certain length of time was assigned—I think seventeen years—during which inventors should receive this reward. Perhaps that is too long, and it might be wise to reduce that time, but I certainly protest that it will work a very great hardship if a man is denied the fruits of a product patent. Now, let us look at it in a common sense way. If I, as the result of months or years of study or chemical experimentation, succeed in producing something of a very great value in medicine or the arts—not being granted a *product patent*, I am granted a patent only on a specific *process*. It is a matter of common knowledge that in ninety-nine cases out of a hundred, the process that is worked out in accordance with the knowledge of chemistry existing at that time, will be a very crude and a very expensive one. I defy any man before me to cite a single chemical or pharmaceutical or medicinal substance manufactured by chemical reactions, the process of which was not improved very materially

within one or two or perhaps at the outside three years from the time it was originally patented, and its manufacture commenced. It is the most natural thing in the world that chemical processes should be improved, and that with the bringing to bear the minds of various chemists that improved processes should be worked out—processes differing very materially perhaps from the original process employed. Now, what would be the natural result? The man who spends his money, his brains and time, in working out a problem of this kind will soon be deprived of the result of his labor, because the attention of some other individual has been attracted to the value of this particular substance. The idea may have lain fallow for a hundred years, and the second or third man never thought of it; he never saw any inducement to spend any time or money on it; but when the original inventor has brought it forth and proved its value as a dyestuff or a medicine, then this second pirate—and you cannot call him anything better than a scientific pirate—sees the benefit, sets up in competition by using some other process, and is able to take advantage of this and reap the fruit of the inventor's intelligence and industry. Now, if this committee recommendation is adopted, the original inventor is absolutely helpless. A chemical discovery is not on the same basis as a mechanical invention. If I invent a machine for knitting socks, I have a product that will show its originality; I manufacture them of a certain shape and involving certain mechanical processes and parts. I place my machine on the market. If another man places a knitting machine on the market which embodies the principle involved in my machine it is evident at a glance, and it does not require any proof; it only needs that a skilled man look at it and the infringement is apparent and the inventor has his recourse.

Suppose I should produce "phenacetin" and it had not been discovered before. We now know it is of immense value. I introduce it for the first time, but I have nothing except a process patent. I begin to manufacture it; Smith knowing its value, erects a plant, throws a sixteen-foot brick wall around it, and begins to manufacture it. How am I going to prove that he is not infringing my process. The Committee says, "Bring Mr. Smith into court and force him to prove that he makes 'phenacetin' by a different process." That is the law, as I understand, in Germany and that is the procedure the committee recommends in the United States.

Gentlemen, the people in the United States do not think like the people in Germany. Their whole code of legal procedure is different; their method of thought is different, and a thing of that sort does not appeal to American people. In this country we look upon a man as being innocent until he is proved guilty. By this process we are going to upset our institutions and adopt the un-American idea of assuming a man is guilty until he proves his innocence. But, wholly aside from that, you are throwing around the original inventor, difficulties that it is almost impossible to overcome in fighting this underhand competition of a second man who wants to infringe his process. It is unethical; it is un-American; it is essentially wrong.

There is another phase of this matter—You cannot take capital by the scruff and force it to invest in manufacturing projects. All great achievements along chemical lines are brought about by the expenditure of money. You cannot buy brains without money, and, brains are commanding more money every day. You have to get a man with brains and training and you have to give him the proper apparatus and equipment and environment, and all that calls for the expenditure of money. If you individually have five thousand dollars or fifty million dollars to invest, where are you going to put it? Are you going to place it in backing research of this kind, looking for new technical, chemical or pharmaceutical products, where you have no more protection than is offered by this committee's recommendation, or are you, going to put your money in harvesting machines or soap or sardines or hay and the thousand and one other things that will give you a more assured income? This is not a matter of theory. It is a hard, cold fact. Money is going to the enterprise where it has the best protection and yields the largest income. Such things are not done as a matter of sentiment, I am sorry to say. Money is behind them and money is the driving force all through. It requires money, money, money all the time to carry out work of this kind.

Now, just one more thought. This great war in Europe has taught us one thing, if nothing else, and that is the fact that we are absolutely, hopelessly, shamelessly dependent on Europe for pharmaceutical, medicinal and chemical products of all kinds. Where do you get all those things—even common chemicals? From Europe. You cannot today place in the United States an order for immediate delivery for as much as two tons of ordinary precipitated sulphur. Isn't it ridiculous? I know of but one firm in the United States who are making precipitated sulphur.

Cinnamic acid used to sell for two dollars per pound, imported from abroad, and yesterday I saw a quotation demanding a contract for a 1000 pounds at \$25.75 a pound, and there is only one firm today making cinnamic acid; up to two years ago there was not a pound manufactured in the United States. You could not buy a pound of diethyl aniline in the United States two months ago, and there is only one firm today making it.

We must pay a protective price to a reasonable extent to build up our chemical industries. The United States has made itself the wonder of the world because its metal industries have received proper protection in the form of a protective tariff. Back in the eighties a few manufacturers in the United States began the fairly successful production of aniline dyes. They had the proper protection at that time, and many thousand dollars were spent in promoting this industry. A change in administration and the selfishness of the men who used the dyes wiped out this protection and the color industry in the United States practically died. Now we wish we had it, and have not. We might have had a color industry today that would have made us independent of the world if this protection had not been removed. You remember a few years ago when the farmers demanded the protection of beet sugar. They claimed that it would employ labor and result in cheaper sugar. They claimed it would be to the interest of the whole United States to do so. A lot of us did not think so, and it looked as if the beet sugar industry was about to be wiped out not so long ago. Now, what is the result? The protected beet sugar industry stands to save the United States millions of dollars. I mention this to show that by paying a little more for a few years, it comes back like bread upon the waters, back to the American consumers to the extent of millions of dollars. The same thing applies to the protection of chemical and pharmaceutical substances based on chemical processes.

I think I have said enough to show that this proposal calls for most careful consideration. There are two sides to it and I do not believe it would be a wise move for this association to advocate the abrogation of product patents.

ALEX. M. ROVIN: This subject, I understand, invokes two schools of thought—the materialistic and the ideal school. It is true, in the light of history, we know that the incentive which modern materialistic thought has recognized is money, money, money; but on the other hand in the light of history, impartially speaking, we do know that in the development of every field of science, if has not been from an incentive of money. Anyone that knows anything about general history as applied to the sciences and arts, knows that whenever there has been a science developed in its slow but sure process, it has been principally through the natural desire of man to contribute something to general society. In this day we live in an age of extreme materialism and the law of competition is very intensive and very acute, and this particular tendency has compelled society, especially of the United States, to make an effort to protect the ingenuity of man. That is all true. To our material advantage, the financial advantage, the recommendations of Doctor Stewart are contrary, but in the light of real human instinct we must not forget that every stage of society is displaced by a new stage, and let us look forward to this fact, that commercialism as we understand it today, as we practice it today, is merely a passing stage of the game in human society, and the idealistic school will eventually predominate. The incentive to the progress of science is not money only. This is the answer I would like to make to the statement of Doctor Francis. I am convinced that protective laws are essential, but there are better ways and methods to employ in order to go ahead in the field of scientific endeavor. I endorse the moral and ideal spirit of Doctor Stewart and from a material standpoint I accept the reasoning of Doctor Francis.

FRANK R. ELDRED: Doctor Francis has stated in a very forceful way his individual views of the subject. I want to add a few words which represent my personal views, and at the same time point out the attitude of the American Chemical Society which I represent as delegate to this Association.

In order to show you the different conclusions in regard to two points covered by the report of this committee, that is to say, the subject of product patents and of a compulsory working clause, I want to tell you about the work of the committee on patents of the American Chemical Society. This committee, consisting of Dr. Leo. H. Baekeland, Dr. B. C. Hesse and Dr. William Grosvenor, has gone into the matter very thoroughly. They have not only brought in recommendations and made statements concerning these points, but Doctor Hesse has backed them up with a very extensive compilation of statistics.

We must consider two stages of the problem, the theoretical and the practical. Theory,

as we all know, is a very good thing, as a starting point, but you are aware that if a number of chemists get together to discuss any point of chemical theory, some very striking differences of opinion will immediately arise, and then they must secure experimental evidence to prove their theories. After all, the theory is only good in so far as it enables you to test it and thus establish the facts. Now, that is exactly what has been done, in the compilation of these statistics to which you can all refer in the *Journal of Industrial and Engineering Chemistry* for April and November 1915. You will find I think thirty or forty pages of statistics and discussion. If you will take the time to go over that mass of statistics carefully I think you will have a very clear view of this whole question. Compulsory working, in theory, is a beautiful idea, but these statistics will prove to you that where this theory has been put into practice, it has been a failure. If I had time, I might offer an explanation of the failure of such legislation, but it has been proved that compulsory working has wrought injury to the industries of the countries where it has been tried, rather than good as you might theoretically expect it to do. That was a case of testing a theory and proving it to be fallacious.

Now in regard to the product patent for chemicals, the argument is often advanced, and it is perhaps the chief argument, that the great chemical industry of Germany was built up under the protection of process patents only and therefore that system would be a good one for us to adopt. However, if you will look into the German process patent and the manner of granting patents on chemical processes in Germany, you will find that the product itself is more completely protected in Germany than it is by our American product patent. That may have something to do with the fact that the chemical industry was built up to such a wonderful extent along certain lines in Germany—the fact that they had even greater patent protection than we had in this country.

Another argument which is advanced is that the product patent works a hardship on the American manufacturer. This is really a ridiculous statement. As Doctor Francis pointed out, the only way in which the American manufacturer is willing or able to develop the chemical manufacturing industry in this country is under complete patent protection. The fact is largely overlooked that when you try to cover drugs and medicinal chemicals, you cannot stop at medicinal chemicals, and some of the people who favor the abolition of the product patent fail to point out that when you hit the medicinal chemicals, you also hit a very large number of technical chemicals. In fact, it would affect all organic chemicals, and their manufacture would never be developed to any great extent without proper patent protection.

The justice of granting to the inventor of a chemical product the same protection you would grant to the inventor of a mechanical or electrical contrivance is so apparent it hardly needs to be mentioned. The American Chemical Society, with ten thousand members, including both university and industrial men, has favored and is advocating very strongly the continuance of the product patent, and also opposes compulsory working. This will show you what the chemists of the country who have made a very thorough study of chemical patents think of the subjects under discussion.

I do not understand Doctor Stewart's idea in regard to the cooperation between the practical and the educational pharmaceutical men. In the American Chemical Society the cooperation between the educational men and industrial men is very close and the educational men are just as much united in favoring thorough patent protection as the industrial men. It seems to me that this Association should be very careful, to take no action in opposition to the position of another association which has studied the subject of chemical patents as carefully as the American Chemical Society has done.

As you know, the manufacture of dyes is now being taken up extensively in this country and the manufacturers are very much opposed to such changes in our patent laws. They feel that it will jeopardize the dye industry in this country if they do not receive the protection of product patents. In discussing this matter we also frequently overlook the fact that previous to the European war the value of the products of a chemical nature which we exported to Germany was greater than the value of the chemical products which we imported from Germany. Moreover the value of the German patents held by citizens of this country is greater than the value of the United States patents held by citizens of Germany and therefore in discussing chemical patents we must take into consideration the effect of any proposed legislation upon the patent system as a whole.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman*; G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio*.

Editorial Office: 253 Bourse Building, Philadelphia, Pa.

THE COLLEGES OF PHARMACY AND THEIR STUDENTS.

Commencement exercises of the colleges of pharmacy have been held and it is safe to say that the graduating classes of most schools have been smaller than heretofore. The reason for this is known and therefore every effort should be made by the schools to stimulate attendance in every permissible way. We have heretofore stated that in times like the present suggestions are acceptable that would not be advised under normal conditions.

It seems to us that the years of preliminary drug store experience as entrance requirement to schools of pharmacy might be cut down so as to assure graduation before the candidates have arrived at their majority. Boards of Pharmacy could examine candidates even though they are less than 21 years of age and deficient in years of drug store experience. Report on their examination could be withheld or a temporary certificate given them. With some schools and in some States this might not be possible, but it is a matter that should be carefully considered under present conditions, always bearing in mind that there will be an end to this war. The schools must have students, not only for revenue but so the public may be efficiently served; the proposition therefore involves both an economic question and a duty.

For the reason that pharmacists are not exempted by virtue of their profession, though district boards, when they deem necessary, may place them in deferred classes, every pharmacist within the age limits may be drafted and thus leave some communities without any pharmacists; in fact, there are such instances now. (See letter of Ex-President Frederick J. Willing in Correspondence Columns.)

It is unnecessary to suggest that every related act of pharmacy schools should be based on assisting the Government in its mobilization; this they have done from the very beginning of the war, are doing now and will

continue to do, but there is a necessity for conserving pharmacists and students for pharmacy schools. Women should be encouraged to take up the study of pharmacy but, unless they have already engaged in the work, relief from this source could not possibly come for a number of years.

An editorial "Colleges and the Country," in the *Philadelphia Public Ledger* of May 21, 1918, refers to the burdens of educational institutions and the importance of coordination of the colleges with Government departments as a war necessity. Part of the editorial follows:

"The proportion indeed of men who have gone into service, from the undergraduate and the graduate groups, the men out of college, is so high as to menace even the wartime stability of the colleges. Nevertheless, the colleges are still planning new sacrifices for their undergraduates during the summer. Thousands are enrolling in the United States employment service, anxious to make use of all their spare time for the country and not waste their own energy by a summer of idleness. All this is what might be called the roscate side of the picture, since it reveals all as actuated by the highest patriotic principles. At the same time, as the various college officials know, and as has been made clear at the recent conferences of college presidents and other administrative officials, and as the preparatory school heads know very well also, what the colleges have done has been magnificently one-sided, they bearing all the burdens of the war, while the Government, though it incites this sacrifice in all its services, primary and secondary, has by no means cooperated with the colleges to save certain features of the situation. Of course, this lack of cooperation comes from the fact that we have no Department of Education that can work out a broad line of policy which would coordinate the colleges with all the Government departments and save the unnecessary waste of the younger men who will be needed later in the

immediate future in professional, engineering and other specialized services to the community.

"Where we ought to be strong through a central organization, we are therefore weak; and it looks as if the weakness would continue through the war, since neither Congress nor the various executives in Washington are inclined to relieve the very grave situation. What the colleges need and what they should demand is a coördinated support and not the mere lip-service of rhetorical approval for the magnificent sacrifices they are making.

NATION-WIDE ECONOMY.

To carry out the program of national economy demanded of the American people by the war they must adopt scientific and systematic methods of economy. Spasmodic and periodic saving will not fulfill the demand upon us.

One method that has been proposed and has the approval of the Treasury Department is for every American to pledge himself or herself to economize and save, and with the savings at definite periods purchase specific amounts of war-saving stamps.

We must give our Nation, we must give our men in arms, all the strength and support possible. To do this we must cut our own demands on the labor, material, and money of the country to the limit, and increase to the limit the supply of money, material, and labor available to the Government. All of our energies and resources should be devoted to the winning of the war, and to accomplish this we must economize, save, and lend to the Government.

A definite systematic plan of saving, strengthened by resolve and a pledge to save and lend to the Government, will be productive of the best results. The savings plan campaign is now on. Every patriotic American should make a pledge to save and keep the pledge.

NEW NEW YORK HEALTH LAWS.

A bureau of venereal diseases has been established by law in the New York Department of Health. The bureau may manufacture and dispense remedies for the treatment of venereal diseases. Other duties are the examination of specimens and distribution of literature for the education of the public.

A disease inspection bill has also become a law which provides for the examination of persons suspected of having infectious diseases. Persons affected must submit to a required course of treatment.

THE QUININE SITUATION.

Under date of May 13, Consul-General Fuller, at Padang, Sumatra, advised the Government that licenses to export to the United States would be freely granted for all commodities on the embargo list, which includes quinine and cinchona bark.

Dr. H. H. Rusby, in a letter to the *Paint, Oil and Drug Reporter*, reviews the cinchona situation of South America. His interesting communication concludes with the following paragraphs:

"There is, however, a far more favorable aspect to the status of the Colombian barks. While the conditions for their export are peculiarly unfavorable, those for their manufacture at certain points of their production are equally favorable. This is not an undertaking that can be expected to take care of itself, and that can be gone into on the mere strength of enthusiasm or even energy. There are many and deep pitfalls which can cause disaster. All the difficulties of manufacture under ordinary conditions are multiplied and there are new ones in addition. Nevertheless, after a close study of every condition and means of meeting it, I have no hesitation in saying that the production of quinine in Colombia constitutes the easiest method of meeting the situation confronting the United States as a result of the curtailing of our East Indian supplies. The material is sufficiently abundant to supply thousands of tons of bark annually; its manufacture there is feasible and the business can be made highly profitable by correct procedure.

"In 1885 the same situation was presented by the coca leaf and cocaine production, and I then advised the manufacture of the alkaloid at the plantations. This industry was later established and has reached great proportions and yielded rich returns. I now see the same opportunity in the case of quinine quite as clearly as I then saw it in the case of cocaine. The principals under whose direction I made my Colombian studies have now, under my advice, organized a company which plans to develop other profitable lines, but which will, I am sure, produce an abundance of quinine with great advantage to this country."

FOR ARMY WAR SERVICE BUREAU.

A bill to establish a congressional Army war service bureau to relieve members of Congress from the burdens of correspondence on military matters was introduced by Representa-

tive Sanford, of New York. Under the terms of the bill both the bureau and the War Department would be forbidden to consider a congressional recommendation for a commission or appointment, except as such recommendation bore on the character or residence of the applicant.

THE EDMONDS BILL.

R. P. Fischelis, in the *Druggists' Circular*, says, "that it is well to remember that the Congressman who favors the Edmonds Bill does so because it provides for adequate pharmaceutical service for his son and his constituent's son who are in the army."

We cannot expect a favorable report from the Committee on Military Affairs unless they are convinced that the measure provides a needful service. We are convinced that it does or this would be our last word on the subject; this conviction, however, induces us to impress upon every pharmacist to take a personal interest in its furtherance. The main thing is to have your patrons understand the purpose of the bill so thoroughly that they will at once express their views to their congressmen. It is a matter of such importance that any selfish motives would do injury to argument, plain and clear presentation of facts is all that is desired, but naturally a thorough interest in its importance must be shown. Do your part in the propaganda.

AMERICAN CASTOR BEAN CROP PROSPECTS.

Several hundred thousand acres of land have been planted with castor beans, chiefly in the South, and the crop is said to be doing nicely in most sections.

Dr. W. W. Stockberger (chairman Scientific Section, A. Ph. A.), in charge of the office of drug-plant and poison-plant investigations for the Bureau of Plant Industry, U. S. Department of Agriculture, and who is in special charge of the growing of castor beans for the Government, is on a tour of the Southern States. The plans of Dr. Stockberger when he left Washington called for a tour of six states with conferences in the principal sections of each where castor bean contracts have been let.

DR. WILLIAM MANSFIELD TO BECOME DEAN OF ALBANY COLLEGE OF PHARMACY.

William Mansfield, A.M., Phar.D., professor of histology and pharmacognosy at the

College of Pharmacy, City of New York, Columbia University, will leave the college to accept the position of dean of Albany College of Pharmacy. He will enter upon his new duties July 1. It is understood that arrangements have been entered into by the Albany college and Union College by which a complete reorganization of the college and of the teaching staff will be effected, thus affording Dr. Mansfield increased opportunities. While a distinct loss to New York college, his associates and his many friends in drug circles in this city and state are congratulating him upon this new recognition of his ability in his chosen profession.—*Paint, Oil and Drug Reporter*.

CANADIAN PHARMACEUTICAL JOURNAL CELEBRATES FIFTIETH ANNIVERSARY.

The Canadian Pharmaceutical Journal has completed fifty years of service and celebrates the event with a Jubilee Number.



G. E. GIBBARD.

There is much interesting historical matter in the issue. In a recent letter, Editor G. E. Gibbard advised that he contemplated attending the Chicago meeting of the American Pharmaceutical Association.

CHEMISTS STAND BY L. P. BROWN.

The New York Section of the American Chemical Society has adopted resolutions favoring the retention of Lucius P. Brown, who has been temporarily suspended as direc-

tor of the bureau of food and drugs, pending trial on charges growing out of Mayor Hylan's proposed reorganization of the Health Department, of which that bureau is one of the most important divisions.

The Council of the New York Academy of Sciences has adopted similar resolutions. Mr. Brown is a member of the American Pharmaceutical Association.

SON OF PROF. JOHN URI LLOYD HAS RETURNED FROM FRANCE.

The son of Prof. John Uri Lloyd, returned from France at the close of his term of enlistment, in August last, being recalled by Cornell University for the purpose of giving a series of lectures for the benefit of the Allies, a work in which he is still engaged.

FORDHAM UNIVERSITY COLLEGE OF PHARMACY ADDS FORTY-TWO MEMBERS TO THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The interest of Dean, Dr. Jacob Diner, and Prof. Gustave Horstman is noted by the number of applications from Fordham University College of Pharmacy. The additions this year number forty-two, all of them bearing the endorsement of the two members mentioned.

PURDUE'S "BIT."

The Purdue University service flag now has 1900 stars, and of these 65 are for members of the School of Pharmacy.

The men from the School of Pharmacy are classified as follows: 11 commissioned officers, 22 non-commissioned officers, one chief pharmacist (Navy), 5 pharmacists (Navy), and 25 privates. Among the commissioned officers there is one major, one captain, and nine lieutenants. They are distributed in the service as follows: 27 in the Medical Corps, 18 Infantry, 8 Navy, 3 Engineers, 3 Gas Defense, 2 Sanitary Detachment, 2 Mechanics, and 2 Aviation.

Mrs. Charles W. Johnson, wife of Prof. Johnson, of the University of Washington, died May 2, after an illness of about three weeks. Mrs. Johnson was a graduate of the University of Michigan. The husband and three children survive. The sympathy of the members of the A. Ph. A. is extended.

Dr. J. H. Dorman is a graduate of Baylor University College of Pharmacy and also of its Medical Department. Soon after the war started he enlisted in the Medical Corps of the British Army, serving first in England and then in France. When the United States



J. H. DORMAN.

entered the war he became attached to the U. S. Expeditionary Forces and he is now Chief Surgeon of a hospital "somewhere" in Italy.

William Jay Schieffelin, Jr., son of Dr. Schieffelin, member of the A. Ph. A., was married May 4 to Miss Amette Markoe, daughter of Dr. and Mrs. W. Markoe, of New York City. The groom is a first lieutenant Twelfth U. S. Field Artillery.

Max Morris, president of the Max Morris Drug Company, died at his home in Macon, Ga., April 22, of pneumonia. He was president of the Georgia Pharmaceutical Association in 1905 and 1906 and secretary from 1906 to 1910; member of the Georgia Board of Pharmacy from 1898 to 1906. Mr. Morris joined the American Pharmaceutical Association in 1898. His parents, wife, two sisters and two brothers survive him.

SOCIETIES AND COLLEGES.

THE CHICAGO MEETING OF THE
AMERICAN PHARMACEUTICAL
ASSOCIATION.

The program for the Chicago meeting will be found on pp. 466-467 of the May issue of the JOURNAL. Prepare now to participate, your papers should be in the hands of the Chairmen of the Sections thirty days in advance of the meeting and this is to be held during the week of August 12, headquarters at the Congress Hotel.

Contributors to the Sections should, if their papers are lengthy, submit with them an abstract of each, so that in the event time should not permit of the reading of the original, due consideration will be given to the work you have done.

The presiding officers and secretaries of the Sections are:

Scientific: Chairman, W. W. Stockberger, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.; Secretary, H. C. Fuller, Institute of Industrial Research, 19th and B Streets, N. W., Washington, D. C.

Practical Pharmacy and Dispensing: Chairman, J. C. Peacock, Erie and Broad Streets, Philadelphia, Pa.; Secretary, R. W. Terry, Groveport, Ohio.

Education and Legislation: Chairman, C. B. Jordan, 409 Russell Street, Lafayette, Ind.; Secretary, W. F. Rudd, 1216 Grove Ave., Richmond, Va.

Commercial Interests: Chairman, R. P. Fischelis, 828 N. 5th St., Philadelphia, Pa.; Secretary, F. W. Nitardy, 66 Orange St., Brooklyn, N. Y.

Historical: Chairman, L. E. Sayre, Lawrence, Kans.; Secretary, Hugo Kantrowitz, 104 John Street, New York City.

Womens: President, Miss Zada M. Cooper, University of Iowa, Iowa City, Ia.; Secretary, Mrs. R. H. Kenaston, Bonesteel, So. Dakota.

House of Delegates: Chairman, Samuel C. Henry, 702-168 N. Michigan Ave., Chicago, Ill.; Secretary, Jeannot Hostmann, 115 W. 68th St., New York City.

Those who can do so without inconvenience are requested to send a duplicate copy of their papers with abstracts to the Editor of the JOURNAL A. PH. A., 253 Bourse Building, Philadelphia, Pa.

Chairman Charles E. Matthews, 169 N. Franklin Street, Chicago, Ill., is Chairman of the Committee on Entertainment. He will

be glad to make reservation for you. The Local Secretary is E. N. Gathercoal, 701 So. Wood Street, Chicago, Ill. A list of the officers of the American Pharmaceutical Association will be found on page 496, May issue of the JOURNAL. An application blank for membership in the A. Ph. A. is printed in nearly every number of the JOURNAL. Remember the dates of the meeting, during the week of August 12. The meetings of the National Association of Boards of Pharmacy and of the American Conference of Pharmaceutical Faculties will be held on Monday and Tuesday of the same week.

OFFICERS OF THE MANUFACTURING
PERFUMERS' ASSOCIATION OF
U. S.

President, G. A. Pfeiffer, of New York; *First Vice-President,* W. A. Bradley, New York; *Second Vice-President,* George F. Merrell, Chicago; *Secretary and Treasurer,* Walter Mueller, New York; *Executive Board, 1921,* A. M. Spiehler, Rochester, N. Y.; C. M. Baker, New York; Vincent B. Thomas, New York; 1920, Howard Goodrich, Omaha; D. H. McConnell, New York; 1919, Gilbert Colgate, New York; P. E. Page, Brooklyn.

OFFICERS OF PROPRIETARY ASSOCIA-
TION OF AMERICA.

President, Frank A. Blair, Chicago, Ill.; *First Vice-President,* W. H. Gove, Lynn, Mass.; *Second Vice-President,* Allen Moore, Monticello, Ill.; *Secretary-Treasurer,* Charles P. Tyrrell, Syracuse, N. Y.; *Executive Committee,* three years, V. Mott Pierce, Buffalo, N. Y.; J. A. Gray, New York City; two years, Carl J. Balliet, Buffalo, N. Y.; Stanley P. Jadwin, New York City; one year, A. H. Beardsley, Elkhart, Ind.; J. F. Hindes, Baltimore, Md.; Z. C. Patten, Jr., Chattanooga, Tenn.

REORGANIZED WAR SERVICE COM-
MITTEE OF AMERICAN DRUG
MANUFACTURERS' ASSOCIA-
TION.

The War Service Committee of American Drug Manufacturers' Association is now composed of the following gentlemen: Willard Ohliger, chairman, care Frederick Stearns & Co., Detroit; F. G. Ryan, secretary, care Parke, Davis & Co., Detroit; Donald McKesson, care New York Quinine and Chemical Company, New York City; Frederick Rosen-

garten, care Powers-Weightman-Rosengarten Company, Philadelphia, Pa.; W. A. Sailer, care Sharp & Dohme, Baltimore, Md.; Burton T. Bush, care Antoine Chiris Company, New York City; Dr. H. C. Lovis, care Seabury & Johnson, New York City; Milton Campbell, care H. K. Mulford Company, Philadelphia, Pa.; Dr. W. C. Abbott, care The Abbott Laboratories, Chicago, Ill.

The address of the committee is 1050 Penobscot Building, Detroit, Mich.

STATE PHARMACEUTICAL ASSOCIATION MEETINGS.

The State Pharmaceutical Association meetings for June were listed in the May issue of the JOURNAL with the exception of Maryland. The date of this meeting was named only recently and the association will convene at Buena Vista, Pa., June 25-28; Eugene Hodson, of Baltimore, is the president and E. T. Kelly, also of Baltimore, is secretary.

The July conventions are: California, at San Diego, July 8-10, W. Bruce Philip, Oakland, president, and E. A. Henderson, Los Angeles, secretary; Ohio, on steamer at Toledo, July 21-26, E. H. Thiesing, Cincinnati, president, and Theodore D. Wetterstroem, Cincinnati, secretary; Oregon, at Seaside, July 9-12, Hal J. McMair, Ashland, president, and A. W. Allen, Portland, secretary; Tennessee, at Jackson, July 9-11, Harry Mayer, Memphis, president, and T. J. Shannon, Sharon, secretary; Virginia, at Natural Bridge, July 9-11, C. H. Goldsborough, Culpeper, president, and E. L. Brandis, Richmond, secretary; Washington, on boat at Seattle, July 9-11, H. G. Duerfeldt, Spokane, president, and J. Elmer Brown, Spokane, secretary.

A CRITICAL PERIOD IN THE HISTORY OF THE MO. PH. A. IS AT HAND.

We are now in the most supreme phase. Organized in 1879 to secure a pharmacy law for Missouri, the Association has continued almost forty years in conceiving and developing still other agencies intended to promote pharmacy as a calling of vital usefulness. In 1915, we thought about the war in Europe. The year following, we commented on the great world conflict and its effect on pharmacy. In 1917, we were bewildered by this remarkable and unexpected event and scarcely realized that the United States was in the war

Today, we know that this, the greatest of all human contests, is our war and we must win it.

Today the most critical period in the history of the Mo. Ph. A. is not of such vital concern to the organization as such. We have been careful and prudent and a few years of quiescence would not kill the vitality of the Association nor blot out its accomplishments. The critical situation concerns us as human beings and as individual pharmacists. No person can escape the effects of the war and we must each and all bear a portion of the burden. So much for us as citizens of Missouri. Now, as individual pharmacists, we have the privilege and the duty of doing more for the cause than can be logically expected from the citizen at large.

Come to the Elms Hotel at Excelsior Springs, June 11-14, and with frankness, honesty and simplicity consult with your fellow members of the Mo. Ph. A. for the good it will do you and the benefit that humanity may derive. This is the hour for resolute action and intensive cooperation.

HENRY M. WHELPLEY,
Secretary.

We are printing this call because there is in it much for every pharmacist to consider. Those who have never taken any great interest in their State Association should do so this year. A wise business man exerts his greatest energy when there are difficulties in the way of his progress. The time to convince a friend of the sincerity of your friendship is when he needs a friend. The message is one for every pharmacist, a call to duty in behalf of your State Association, of the National associations.

We have added 217 new names to the list of the American Pharmaceutical Association membership this year. Will each member endeavor to add *just one more*? We are becoming experts in "going over the top;" let us apply like energy in building up *our* Association.

OFFICERS ARKANSAS ASSOCIATION OF PHARMACISTS, 1918-1919.

President, Jesse D. Hodges, Little Rock.
Vice-President, W. C. Hogan, Atkins.
Second Vice-President, F. W. McClerkin, Little Rock.
Secretary-Treasurer, Miss Mary A. Fein, Little Rock.

OFFICERS LOUISIANA PHARMACEUTICAL ASSOCIATION, 1918-1919.

President, John R. Taylor, New Iberia.

Vice-President, John N. Wallo.

Second Vice-President, W. N. Wilson, Independence.

Recording Secretary, George W. McDuff, New Orleans.

Corresponding Secretary, Miss Aurelia B. Kuhn, New Orleans.

OFFICERS OKLAHOMA PHARMACEUTICAL ASSOCIATION, 1918-1919.

President, Thomas Roche, Oklahoma City.

First Vice-President, Lee Drummmond, Dewar.

Second Vice-President, W. J. Roersia, Oklahoma City.

Secretary, F. B. Lillie, Guthrie.

OFFICERS TEXAS PHARMACEUTICAL ASSOCIATION, 1918-1919.

President, Tom Snell, Cooper.

First Vice-President, Sam P. Harbin, Richardson.

Second Vice-President, W. C. Burns, San Antonio.

Third Vice-President, W. H. Wentland, Manor.

Fourth Vice-President, Marvin Anderson, Fort Worth.

Secretary-Treasurer, W. H. Cousins, Dallas.

Home Secretary, J. W. Graham, Austin.

Trustee, R. H. Walker, Gonzales.

Historian, Miss Lum Shippe, San Marcos.

W. B. Morrison, of Waco, and J. W. Graham, of Austin, were elected life members. The 1919 meeting will be held at Galveston.

REXALL CLUBS RESOLVE TO SUPPORT THE EDMONDS BILL.

WHEREAS, It behooves every American druggist who loves his calling to do whatever lies in his power to correct the wrong unintentionally done to pharmacists engaged in the military service of the United States, through failure of the National Government to recognize the knowledge and skill of these pharmacists and their natural and commendable desire to use these for the benefit of their fellow Americans and our Allies; therefore, by the Rexall Clubs of Virginia, Maryland, Delaware, the District of Columbia, West Virginia and North Carolina, in convention assembled, be it

Resolved, That we hereby urge the Executive Committee of the International Association of Rexall Clubs to take such action as will insure that every one of the 7,000 Rexall Druggists who constitute our American membership shall exert himself to the utmost to secure the passage, by Congress, of the Edmonds bill which has this object in view.

Resolved, That the President of the Tri-State Rexall Club, Mr. H. Lionel Meredith, of Hagerstown, Md., be, and is hereby requested, to confer with President Louis K. Liggett, of the United Drug Company, for the purpose of securing his invaluable help towards the enactment of this legislation which we so earnestly desire. Having cheerfully placed their lives at the service of their country, our fellow pharmacists are anxious to make the most of whatever knowledge and skill they possess to further the endeavors of the millions of Americans and their Allies who are engaged in this great struggle, and this commendable desire certainly ought to be recognized by the Government.

THE PHARMACIST AND THE LAW

IMPORTANT FEATURES OF THE NEW JERSEY PHARMACY LAW.

Some of the important features of the new pharmacy law of New Jersey are the following:

A sign, stating the name of the registered pharmacist in charge thereof, must, on and after July 4, 1918, be displayed on or in front of each Pharmacy in this State.

Biennial re-registration is required and the fee thereof is \$1.00; a notice will be sent to each registered person before the date on which the next re-registration fee will be due.

Applicants for examination for Registered Pharmacist's registration must, on and after September 1, 1920, have been graduated from an approved College or School of Pharmacy.

The Board of Pharmacy is granted authority to revoke certificates of registration on certain specified conditions, *i. e.*, after each accused person has been served with a copy of the complaint and has been given a hearing before the board and has been found guilty of any of the following charges:

When the registration is shown to have

been obtained by misrepresentation or fraudulent means, or

When the registrant is guilty of chronic or persistent inebriety or addiction to the use of narcotic drugs, or

When the registrant has been twice convicted of violation of Chapter 197, P. L., of 1908, and the amendatory acts thereto, commonly known as the "Anti-narcotic Act," or

When the holder of the certificate has been found guilty of continuous and wilful violations of this or any other statute relating to the practice of pharmacy.

Provision is made for reciprocal registration.

BEVERAGE AND FRUIT SYRUPS NOT SUBJECT TO LICENSE.

Among the food commodities subjected to license by the President's proclamation of October 8, 1917, were "sugar, syrups and molasses."

The syrups intended to be licensed were so-called "table syrups" and not beverage syrups or fruit syrups, or medicinal syrups. It is therefore ruled that beverage syrups or fruit syrups, which include coca cola and other beverage syrups and soda water syrups, and medicinal syrups, are not licensed commodities and neither manufacturers nor distributors of such syrups are required to obtain a license to make or handle them.

USE OF SACCHARIN ALLOWED IN CARBONATED BEVERAGES IN TEXAS

According to an announcement made by Texas Food Commissioner saccharin may be used in carbonated beverages in Texas. The statement issued by him reads: "Due to abnormal conditions existing, ruling No. 12 forbidding the use of saccharin in beverages is hereby suspended until further advised. You are respectfully notified that saccharin may be used in carbonated beverages, provided the product is labeled in such a way that will clearly indicate to the consumer that it has been artificially sweetened with saccharin."

NARCOTIC NEWS AND REGULATIONS

Draft examinations are discovering a large number of narcotic addicts, according to Representative Henry T. Rainey, of Illinois, chairman of the Narcotics Committee appointed last March by the Secretary of the

Treasury on the recommendation of Daniel C. Roper, commissioner of Internal Revenue.

The alarming prevalence of the use of narcotics has been a revelation to the members of this committee, several of whom thought that they had a pretty fair idea before of the number of users of habit-forming drugs.

To prevent a use by which illicit distributors of habit-forming drugs have been able to buy at auction unclaimed packages of drugs from express companies, the Internal Revenue Bureau has issued a ruling that railway and express company agents hereafter must notify revenue collectors of auction sales of unclaimed articles. Packages containing narcotics will be sold only to physicians or pharmacists registered under the Harrison drug act.

Dr. Charles A. Rosewater, who was engaged by Dr. Oscar Dowling, president of the Louisiana Board of Health, to make an investigation of the use of habit-forming drugs in Louisiana, has sent in his report, declaring there are about 18,000 persons using drugs. He makes these recommendations:

"To provide immediate relief from suffering and financial ruin, the State should immediately acquire a supply of morphine and opium, to be furnished addicts in quantities necessary for their physical support, at cost, under strict regulations, to guard against abuse.

"In carrying out these provisions trusted physicians in each locality must cooperate with the State Board of Health in order that there may be no unnecessary suffering, and that the addicts be encouraged to help themselves, and in order that the curable cases can be weaned from the drug as rapidly as possible."

Dr. Rosewater recommended that the State Board investigate the soft drinks containing caffeine dispensed throughout the State.

The Federal officers in the miscellaneous division of the Internal Revenue Bureau are prepared to contest the decision of the United States Circuit Court in Illinois that Section 2 of the Harrison Narcotic law is unconstitutional, but they do not believe it will be necessary to get a special Supreme Court decision in that particular case against A. L. Blunt.

A. L. Blunt, of Chicago, was convicted on 13 counts for violation of the Harrison act. The section of the law held unconstitutional was Section 2, and the principle involved is the one under which the punitive clause of the law was successfully attacked some months ago, that the provision is foreign to the revenue

portion of the act, and is an interpolation of police power in a purely revenue measure.

District Judge Daniel Fish, in Minneapolis, decided that physicians are prohibited from supplying habitual users and may issue to them only prescriptions for curative purposes.

The trade interests and the Federal authorities believe that illegal traffic in narcotic drugs got a severe setback in this judicial decision.

URGES NEED OF NATIONAL TRADE-MARK.

The need of a national trade-mark was urged May 27, at the spring meeting of the National Retail Dry Good Association at Chicago, a special address on the subject being delivered by Chauncey P. Carter, of the Bureau of Foreign and Domestic Commerce, Department of Commerce, who had an important part in drafting the National Trade-Mark Bill now before Congress.

"One reason why a national trade-mark would be of great benefit to the American manufacturers," explained Mr. Carter, "is because there is so much legalized piracy of private trade-marks in foreign markets. The average manufacturer in this country does not consider export business until he has begun to exhaust the possibilities of the home market. In the meantime it never occurs to him that he ought to protect his trade-mark in foreign countries. See what happens, though: A New York exporter purchases some of his products and sends them to a certain country in South America. The buyer there finds that they will sell well and writes back to the New York exporter for an exclusive agency. Naturally, the exporter is not able to give him an exclusive agency nor is he anxious to put him in direct touch with the manufacturer. What does the South American merchant do then? He finds that the manufacturer's trade-mark is not registered in his country, so he takes out a registration in his own name. Some years later the manufacturer decides to enter the export field; he inserts advertisements in export journals and soon secures an order from a reputable concern in that same South American country. The order is accepted and the goods shipped, but lo and behold! when they reach their destination they are confiscated and held upon complaint of the other merchant, who cites his trade-mark registration as proof of his ownership of the mark, also adducing evidence

to show that he was the first user of the mark in his country. And he has the law on his side.

"If we had a national trade-mark, owned and protected by our Government, this American manufacturer could outwit the pirate merchant by merely substituting the national trade-mark for his private mark on all shipments to that country."

Other reasons were advanced for the adoption of a national trade-mark, and issue was taken with those who would make the use of such a mark compulsory. The mark should be granted, it was urged, only to the manufacturers of goods that reflect credit on the industries of the country.

It was also pointed out that the measure providing for a national trade-mark was only one of a number now being put in shape and considered by the Department of Commerce with a view to preparing the American manufacturer and exporter to hold his own in the struggle for world trade that is expected to follow the making of peace.

PROPOSED BRITISH TRADE-MARK LAW.

There is a bill in the British Parliament which provides that if the owner of a trade-mark so uses it as to lead the public to regard it as the name of an article it shall be removed from the register of trade-marks. It is understood that British manufacturers are taking steps to oppose the bill, but should it be passed American articles which have been popularized through name trade-marks might be subjected to imitation under the same name. The American consul general in London has been requested to look into the matter, and if the situation is as serious as reported, manufacturers will ask the State Department to take up the question of protecting American interests.

The provision of the British bill is in substance that when a trade-mark becomes so well known that the public use it as a common name the trade-mark shall become public property. This result is made to depend solely upon the action of the public over whom the trade-mark owner has no control. The proprietor of the trade-mark is given a period of four years in which to induce the public to change its habits, but experience has shown the futility of attempting to accomplish a change in the use of words by the public. The result may be the confiscation and dedication to the public in Great Britain of the most valuable American trade-marks.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

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- FERGUSON, G. A.,
New York, New York.
- CORRELL, E. P.,
Eureka, California.
- HUESTED, A. B.,
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BOOK NOTICES AND REVIEWS.

Year Book of the American Pharmaceutical Association, 1916, Volume V, containing the Fifty-ninth Annual Report on the Progress of Pharmacy, and Constitution, By-Laws and Roll of Members of the American Pharmaceutical Association, corrected up to January 28, 1918. The Year Book corresponds to Volume LXIV of the former proceedings of the Association. Frontispiece, Frederick J. Wulling, 64th President of the American Pharmaceutical Association. The volume is bound in cloth, 618 pp., price, \$4.00. Chicago, Ill., 1918.

The Reporter on the Progress of Pharmacy is Henry V. Arny and the collaborators are: Charles W. Ballard, Karl S. Burkett, Zada M. Cooper, Brooke J. Davis, George C. Diekman, Hermann Engelhardt, Robert P. Fischelis, Henry J. Goeckel, Fanchon Hart, Julius A. Koch, William A. Puckner, Otto Raubenhimer, Louis Saalbach, Hugo H. Schaefer, Clyde M. Snow and John H. Wurdack.

The Reporter states in the Introductory that the preparation of the abstracts for this Year Book was made difficult by the absence of practically all journals from Germany,

Austria and even Switzerland. Abstracts from these sources were obtained from English, French and Dutch journals and notably from *Chemical Abstracts*, the editorial staff of which was able to secure sets of the 1916 journals from the Teuton nations. The proper credit is attached to each abstract printed on the pages which follow:

By employment of these aids, the present Year Book is about as comprehensive as its predecessors. The Reporter expresses his appreciation of the enthusiastic coöperation of his collaborators and his personal loss occasioned by the death of Martin I. Wilbert, a collaborator on the Report on the Progress of Pharmacy since 1911.

Aside from the fact that the above statements offer some information that would be part of a review, the Association desires that due acknowledgment be made to those who have contributed to this valuable work for American pharmacists. This volume presents the abstracts for 1916 and the work on the next one is well under way. It should be remembered that a Year Book can not be completed until some time after the year's activities have closed. The British Year Book closes in mid-year, but we consider the plan of the A. Ph. A. better in this respect.

As far as a review of the book is concerned it would be necessary to repeat much of that which was written relative to former editions. The arrangement does not differ materially from the previous volume, the work has been done carefully, the printing and binding of the book is good. There are nearly 2000 references in the Subject Index and that of the authors has about 1000 names, all of which speaks for the extent of the work represented in the preparation of the book.

We are at a loss to make any suggestions that would improve the work so ably done by the Reporter and his efficient co-workers. The members have heretofore expressed their appreciation of the Year Book and this same approval will be given to the present volume.

E. G. E.

Year Book of Pharmacy (British), comprising, abstracts of papers relating to Pharmacy, Materia Medica, and Chemistry contributed to British and foreign journals from July 1, 1916, to June 30, 1917, with the transactions of the British Pharmaceutical Conference at the 34th annual meeting held in London, July 11, 1917. 12 mo., 438 pages, cloth. London, J. & A. Churchill.

J. O. Braithwaite is the editor of the Abstracts, Thomas Stephenson compiled the New Remedies Section and Reginald R. Bennett is the editor of the Transactions. As a frontispiece, the volume carries a portrait of Charles Alexander Hill, B.Sc., F.I.C., president of the Conference for 1917-18. His presidential address on "Our Medicine Supply in War Time" appears in full in the section of the book devoted to the proceedings of the Conference.

A Research List is included, presenting subjects for investigation. The following are two of the questions submitted, relating to belladonna root: "In what respects, if any, does a tincture from the fresh root differ in its composition and action from one of the dried root?" "Parcels of Indian belladonna root have given abnormal figures on analysis, indicating some base of a lower molecular weight than atropine. An investigation of this drug is required."

Three hundred and fifty pages are devoted to Abstracts. The arrangement of the subjects differs from the A. Ph. A. Year Book, but the purpose is the same to present the matter abstracted in convenient form for reference. Abstracts from German sources are few but the American journals have received correspondingly more attention. The first division is concerned with chemistry while pharmacy comes third. The index is complete, but there is no separate authors' index. Fifty-two publications have received attention by the authors on whom the work reflects great credit. Doubtless the Year Book meets with the same appreciation in Great Britain that is accorded to our own by American pharmacists.

E. G. E.

Proceedings of the National Wholesale Druggists' Association—Forty-third annual meeting held at Chicago, Ill., October 1 to 4, 1917.

This issue of the Proceedings of the National Wholesale Druggists' Association has more pages than those previously published. Primarily this speaks for a large volume of business transacted at the Chicago convention.

The report on legislative measures and rulings under the Harrison law are of particular interest to all druggists. As the activities of wholesalers and retailers are closely linked the very complete reports of various committees can be studied with profit by the latter.

Officers and committee members grace the first pages of the volume, and those succeeding list present and past officers. The Asso-

sociation has 251 active members and 336 associate members. The next convention of this Association will be held in New York City during the week of October 7, 1918.

State "Pure Drug" Laws enacted since the passage of the National Food and Drugs Act, June 30, 1906, with a reprint of said act as amended. 8vo., 732 pages. Compiled by the Proprietary Association of America and the National Wholesale Druggists' Association.

In compiling the laws affecting the drug business the National Wholesale Druggists' Association and the Proprietary Association of America perform a valuable service for the drug trade. The related laws of the Government, all States and U. S. Territories, as well as Cuban decrees and some municipal regulations are either printed in full or in extensive abstract. The compilation is useful for every druggist and more particularly for members of legislative committees. While the work is done for the benefit of the members of the participating associations, the service is by no means thus restricted and therefore the acknowledgment made at the beginning.

Practical Pharmacy for Pharmacists and Physicians.—A text-book for Students in Medicine and Pharmacy. Second Edition. By Birdsey L. Maltbie. Cloth, 6 by 9 inches, pages 400, \$3.00. Distributors, The Druggists' Circular, 100 William Street, New York, 1917.

The distributors say of this book that it represents the author's endeavor to supply a condensed treatise on pharmacy, something more useful than the "quiz" books and yet less voluminous than the standard works on Pharmacy.

The book is divided into five parts and these are devoted to Pharmaceutic Operations, Galenic Preparations, Chemicals and Their Preparations, Products of Plants and Incompatibilities. A number of convenient and useful tables are included. The book is well adapted for students who desire to review, preliminary to further and more thorough study. It is also useful as a reference book for physicians. The volume contains nearly 400 pages, is well printed and bound in buckram.

THE FAIRCHILD SCHOLARSHIP AWARD POSTPONED.

To the Pharmacy Schools and Boards of Pharmacy:

The notice of postponement of the Fairchild Scholarship Award is printed on page 555 in this issue of the JOURNAL. Chairman H. C. Christensen, 4149 Vincennes St., Chicago, Ill., desires that due notice be given of such postponement until the Convention of the American Pharmaceutical Association in Chicago during the week of August 12, when the Committee, of which he is Chairman, and the Fairchild Scholarship Committee will come to a decision relative to the method of award and selection of the candidate.

In the meantime schools of pharmacy should prepare records of the qualifications of their leading students for the Fairchild Scholarship in line with Recommendation 5 of President R. A. Lyman's address, and which reads:

"Recommendation No. 5.—That it be the sense of the Conference that Mr. Fairchild could render the greatest service to pharmacy by offering the scholarship to a graduate pharmacy student, in order that he might pursue some research problem for one full school year, in the school of his choice; and further, that this scholarship be awarded on the basis of the applicant's scholastic training, his standing as an undergraduate pharmaceutical student and upon his fitness to do research."

The action of the joint bodies at Indianapolis is recorded in the minutes of this meeting on pp. 60-64, inclusive, of the January issue, 1918, JOURNAL A. PH. A. A careful study of these pages is suggested.

It would seem advisable that the schools decide on the eligible candidates for the Fairchild Scholarship. It is also advised that a record be kept of the preliminary education possessed by the prospective candidates, of their pharmaceutical training and education, and of their ability to do research work.

The suggestion has been made, although this has not, as far as we know, been definitely agreed upon, that each School of the Conference propose *one* candidate, and that the deans of the Schools furnish the Fairchild Scholarship Examination Committee with data which will form the basis of their decision.

Doubtless Chairman Christensen will notify all Schools of the Conference, as promptly as is possible, of the conclusions reached by the Committee, and make definite requests for information from them that is necessary for making the award. The plan does not contemplate any other examination.

Schools and Boards of Pharmacy should confer with Chairman H. C. Christensen, whose address is 4149 Vincennes St., Chicago, Ill.

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HENRY KRAEMER, Ph.C., Ph.B., Ph.D.
ANN ARBOR, MICH.

President of American Conference of Pharmaceutical Faculties, 1917-1918



HENRY KRAEMER

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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NO. 7

HENRY KRAEMER.

Henry Kraemer, president of the American Conference of Pharmaceutical Faculties for 1917-1918, was born in Philadelphia, Pa., July 22, 1868, the only son of John H. and Caroline Kraemer, both of whom died before Henry was four years old. At the age of nine years he was admitted as a pupil of Girard College from which institution he graduated in 1883, receiving the award of scholarship. His attachment for the College is disclosed in a number of contributions published in the *Girard College Record*, and the high esteem in which he is held by his *Alma Mater* is confirmed by expressions of the faculty, officials and alumni, and by his selection as one of the speakers on Founder's Day and other occasions that mark events of this great institution.

While serving his apprenticeship, in the store of Prof. C. B. Lowe, he attended the Philadelphia College of Pharmacy and graduated in 1889. The subject of his thesis was "A Microscopical and Chemical Study of White Oak Bark;" in recognition of this work he was awarded the John M. Maisch microscope prize and also the Henry C. Lea prize. During his senior year at the College he was assistant to Prof. Samuel P. Sadtler at the University of Pennsylvania, and the year after his graduation in pharmacy he was appointed instructor in botany and pharmacognosy in the New York College of Pharmacy. While residing in New York he took a special course in botany at Barnard College, Columbia University, under Dr. Emily L. Gregory.

In 1891 he matriculated in the School of Mines, Columbia University, graduating in 1895 with the degree of Bachelor of Philosophy. This same year he was appointed professor of botany, pharmacognosy and materia medica in the School of Pharmacy of Northwestern University; he was, however, granted one year's leave of absence before entering on his duties. This year was spent at the University of Marburg, Germany, most of the time being devoted to the study of botany under Prof. Dr. Arthur Meyer. He also attended the lectures on philosophy by Professor Cohen; on chemistry by Professor Zincke, and those on physics by Professor Melde. He was granted the degree of Doctor of Philosophy after passing the required examinations and he gained the distinction of *cum laude*. His inaugural dissertation, presented to the Philosophical Faculty of the University, was on "*Viola tricolor* L., in morphologischer, anatomischer und biologischer Beziehung."

After returning to the United States Professor Kraemer assumed the duties at Northwestern University where he remained one year when he was elected

to the chair of botany and pharmacognosy in the Philadelphia College of Pharmacy, a position he continued to hold until last year when he accepted the chair made vacant by the decease of Prof. J. O. Schlotterbeck in the University of Michigan.

A sketch of Professor Kraemer in the *American Journal of Pharmacy* (1908) has been drawn upon for these data and therein some of his other activities are listed: Member of the Revision Committee of the U. S. Pharmacopoeia from 1900, chairman of its sub-committee on botany and pharmacognosy; instructor in microscopical botany in the summer course in botany given by the Torrey Botanical Club and the College of Pharmacy of the City of New York, 1890-92; chairman of the Committee on Field Meetings of the Torrey Botanical Club, 1891-92; instructor in botany in the Natural History Camp for Boys under the direction of the Worcester Natural History Society, at Wigwam Hill, 1892; editor of the *Alumni Journal*, New York College of Pharmacy, 1894-95; editor of the *American Journal of Pharmacy*, 1899-1917; Reporter on the Progress of Pharmacy, A. Ph. A., 1892-95; collaborator on *Pharmaceutical Review*; member of the scientific staff of the Marine Biological Laboratory at Wood's Hole, Mass.

Among his affiliations the following are named: Life member of the International Botanical Society, Botanical Society of America, the American Philosophical Society, the American Association for the Advancement of Science, the Philadelphia Academy of Natural Sciences, the American Pharmaceutical Association, Columbia University Club, Philadelphia College of Pharmacy, American Society for Extension of University Teaching, Wild Flower Preservation Society of America and a number of alumni associations, also member of numerous other organizations.

Membership in some of these societies referred to may with some individuals indicate only eligibility, but Professor Kraemer's affiliation signifies more, it means his active participation in promoting the purposes of the respective organizations, and so a list of the titles of his publications and addresses made up six printed pages in the publication referred to. Many of the papers are subjects of editorials in the *American Journal of Pharmacy*, and reports of his research work in this journal. The pages of the A. Ph. A. Proceedings record others and a number are contributions to other pharmaceutical journals. But aside from these writings, many made their first appearance in *Science*, *Bulletin of the Torrey Botanical Club*, *Journal of the American Chemical Society*, *Botanical Gazette*, *Pharmaceutical Journal* (London), *Proceedings Academy of Natural Sciences*, *Proceedings American Philosophical Society*, *Torrey*, *Journal of the American Medical Association*, *Transactions of the Eighth International Congress of Applied Chemistry* and various State Pharmaceutical Association proceedings. The wonderful capacity for valuable work by the subject of this sketch is manifest. In this connection his assistance in the last two revisions of the U. S. Pharmacopoeia is considered and also the preparation of the first editions and later, revisions of his well-known books: "A Course in Botany and Pharmacognosy," "A Text Book of Botany and Pharmacognosy," "Applied and Economic Botany," "Scientific and Applied Pharmacognosy" and "Outline of Courses in Botany, Microscopy and Pharmacognosy." He also is one of the editors of the U. S. Dispensatory.

Professor Kraemer's investigations relate largely to botanical and pharmacognostical subjects but not by any means restricted to purely scientific research. Last year he delivered a lecture before the Section on Commercial Interests, A. Ph. A., in which he most interestingly presented the commercial value of pharmacognosy, showing that by its technic constituents of preparations in powder form may be identified and brought his subject into a relation with color schemes in drug store adornment and window dressing. So while his interest is in the science he has not lost sight of its practical application and commercial value. Much of his work has been concerned with pharmacography and pharmacognosy of powders with a purpose of devising means of identification and

standardization, and not only in this connection has he investigated colors but also relative to the origin and nature of the coloring matter in growing plants. Color photography has occupied much of his time and the numerous photographic plates he has developed speak for his industry and deep interest, and altruism also—for he contributes the results of his research to students and readers, many of whom have slight comprehension of the number of hours required for these investigations. The starches as well as other plant constituents that now serve as diagnostic characteristics are considered in a number of his reports and papers.

While we regard Professor Kraemer as a scientist he does not lose sight of passing events and he is a close observer, evidenced, for example, by his recent address on "*Kultur vs. Culture*" before the last annual meeting of the American Drug Manufacturers Association, and also such papers as "*A New Method of Education*," "*Life in a German University*," "*The Survival of Justice and Unselfishness*," "*Recreation*," "*The Retail Pharmacist as a Purveyor of Pure Drugs*," etc. Without endeavoring to define Professor Kraemer's views of success and achievement the following is quoted from the closing remarks of his address referred to in the opening lines of this paragraph: "It is comparatively easy for a man to produce a master work, but it is difficult for him at the same time not to get out of touch with his fellows." From this we make the deduction that among his aims are the acquisition of useful knowledge, the communication of it to others and to remain in touch with his fellows. E. G. E.

LOYALTY TO THE COUNTRY AND TO PHARMACY.*

A GUIDE.

TO respect my country, my profession and myself.

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To be devoted to the cause of pharmacy, to lend my best efforts to its uplift and advancement.

To promote association work and thereby improve the service of pharmacy.

To be a pharmacist deserving of the respect and confidence of those whom I serve.

To look upon service in and for pharmacy as an opportunity to be seized with joy and made the most of, and not as a painful drudgery to be reluctantly endured.

To believe in pharmacy heart and soul, to be optimistic relative to its mission, and convey assurance of its importance to those who are served thereby.

* The Guide from a paper by E. G. Eberle under above title, read before Pennsylvania Pharmaceutical Association, June 26, 1918.

EDITORIAL

E. G. LEBERLE, Editor

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THE CHICAGO MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE indications thus far are favorable for a good and certainly an interesting meeting of the American Pharmaceutical Association, during the week of August 12.

Chairman Matthews, Local Secretary Gathercoal and the Committees under their direction have been doing excellent work, and all the pharmaceutical journals have been generous in giving publicity relative to the meeting. Considering that within distances of a few hundred miles from Chicago there are a score of large cities and many with a population of 5,000 or more, and also that the Association has not met in Chicago since 1893, it is reasonable to assume, even under present conditions, that the Convention will be well attended.

According to reports from several State Association meetings the registrations exceeded prior expectations, which is convincing that pharmacists recognize their duty in such attendance, especially this year, when many would gladly have come who could not because of the shortage of help. This condition will have its effect on the meeting in Chicago, therefore it is to be hoped that members will exert extraordinary efforts to be present.

There are more vital questions that require attention this year than ever before in the history of American pharmacy. The one previously indicated is not of least importance, because it concerns the boards of pharmacy and schools as well as retail pharmacists. How will the present shortage of help and the further depletion be met?

Other timely topics relate to alcohol regulations, means and methods of conservation, the war revenue measures, explosives law, contemplated health insurance laws, and bills for regulating the dispensing of remedies for venereal diseases. The Section on Education and Legislation can well afford to assign an entire session, or the greater part of one, for a discussion of these problems, and the derivable value will more than repay members for their attendance. In fact, their importance suggests the expediency of holding a meeting of representatives of State Associations in the House of Delegates for joint action on these matters, as all of their constituents are concerned relative to these provisions and projects.

Other phases of the same questions will find place on the programs of the other Sections, and the coördination and utilization of these discussions and papers contribute to greater efficiency among pharmacists and the advancement of

pharmacy. Those who specialize in any of the branches concerned with pharmacy are specialists; they render a very essential service; the retail pharmacists are generalists—they seek information from all of these sources for their needs in the practice of pharmacy.

There are other subjects equally or more important, as, for instance, the promotion of a pharmaceutical corps in the U. S. Army, as a part of its Medical Department, the adequate representation and coöperation of State Pharmaceutical Associations in the House of Delegates, and a consideration of the advantages to be derived by federating the associations of all the drug industries. Relative to the latter proposition your attention is directed to a paper in this issue by Chairman H. V. Army of the committee having this important matter in charge. Presentations and outlines of the plans have heretofore appeared in the Journal, in the messages of President Dohme, and as part of Ex-President Wulling's address, last year. A careful study of the subject will enable members to participate in the discussions and to lend their counsel.

The call is to attend the Sixty-sixth Annual Convention of the American Pharmaceutical Association in Chicago, during the week of August 12.

Do your best! Come!

E. G. E.

STANDARDS OF PHARMACY SHOULD BE UPHELD. PHARMACY STUDENTS OF DRAFT AGE SHOULD BE GIVEN OUR CONSIDERATION.

Pre-pharmaceutical education needs adjustment—"high school education or its equivalent," is indefinite. The "preliminary drug store experience" may signify a splendid preparatory training for the courses in pharmacy schools or, have little value. It is possible to standardize the first requirement but the latter presents a more difficult problem as the opportunities for training the prospective pharmacy students in drug stores differ as do the inclinations of those who are employed in them.

It is necessary for legal and other reasons to fix an age at which a person acquires certain rights not given to a minor, but this does not necessarily mean that a person of twenty-one years is better qualified for service in pharmacy than one a year younger. Experience and age have a relation to how the individual has employed his time and his ability and capacity for acquiring knowledge. The object is not to minimize the value of experience nor of age but to point out that these two requirements of the prerequisites for practicing pharmacy can be shaded in times like the present, provided, that the exigency for doing so exists and, more specifically, out of consideration for those who will enlist soon after graduation. There has been a depletion of pharmacists, and many others will answer the country's call; they should not be unnecessarily handicapped when they return

from service, so every reasonable opportunity, that does not do injury to the standing of pharmacy, should be given those under the draft age, before going abroad, for completing their education and securing their credentials as pharmacists. Such consideration enlists our immediate interest and may, perhaps, present a duty we owe them and pharmacy; the lowering of educational standards, however, for entrance or graduation requirements or for boards of pharmacy examinations would be deplorable.

A contemporary, in a recent issue, reported a statement from a Government official to the effect that there were only about eight reputable schools of pharmacy in the United States. Such a charge and every other aspersion of this kind should be answered. Charity would suggest that this statement was made without a knowledge of the facts. There is a tendency to remove the need of educational qualifications from pharmacy and it is therefore of greatest importance that the standards of pharmacy not only be maintained but advanced.

Notwithstanding that pharmacy has for many years been deemed necessary to medical practice, that pharmacists have provided the standards for medicines employed by physicians, have met every requirement, there is the inclination, tinctured with selfishness, to belittle its service, in fact, to ignore pharmacy and pharmacists. And to progress backward now would produce the arguments desired by the proponents.

Pharmaceutical education is in the process of standardization, it should not be impeded but the strongest encouragement should be given thereto, war or no war. The very fact that we desire the Government to grant pharmacists recognition by the establishment of a pharmaceutical corps makes such course even more necessary. While this is desirable and pharmacy is entitled to such recognition the point is that pharmacy deserves such support, progressive medicine requires the aid of progressive pharmacy and the people are entitled to the very best service pharmacy can render.

If it should finally be deemed necessary, for the special reason assigned, to grant concessions to students for admission to colleges of pharmacy, then let the entrance requirements be for a lesser number of years of experience, but this of a kind that has greater value in pharmacy; age of the student has a direct relation, but the number of years do not count for so much as how this time has been utilized. The courses in pharmacy should be progressively advanced and the preliminary educational requirements should be raised as fast as practicable. We can theorize as much as we like but the facts and the conditions must be faced.

Drug stores fill an important place in commercial life; in many of them pharmacy is insignificant and unprofitable and it would be far better for the proprietors to discontinue such service, if it can be done without inconveniencing the public.

Other stores can arrange their service so that a lesser number of pharmacists will be employed by assigning them to supervisional duties and to work that must be done by qualified pharmacists.

As far as educational requirements are concerned, let pharmacy go onward not backward. With this thought in mind let us give every possible consideration to the young pharmacists who enlist in the service of our country.

E. G. E.

THE FEDERATION OF PHARMACEUTICAL BODIES.*

BY H. V. ARNY.

It was the writer's fortune or misfortune to be honored with the chairmanship of the committee appointed by President A. R. L. Dohme, of the American Pharmaceutical Association, to consider the federation of American pharmaceutical organizations under the aegis of the oldest national pharmaceutical body in the country, the A. Ph. A. This Federation Committee began its work the early part of the current year and is still continuing its deliberations.

The idea of a federation of the several national bodies representing various branches of the drug trade was put forward by Henry P. Hynson, in 1916, in his masterly address as chairman of the house of delegates of the A. Ph. A. Dr. Hynson's idea was to make the house of delegates the rallying point at which all pharmaceutical bodies, including State pharmaceutical associations, could gather to their mutual advantage.

In his presidential address at Indianapolis last year, President F. J. Wulling discussed at length a plan of federation in which a Greater A. Ph. A. in conjunction with other national bodies would form a great organization of far-reaching influence, with journals, research laboratories and other means of disseminating pharmaceutical knowledge. He expressed the opinion that the raising of one million dollars for these beneficent purposes was a task by no means impossible.

Since assuming the presidency of the A. Ph. A., by reason of the untimely passing of our dear friend, Mr. Charles Holzhauer, Dr. A. R. L. Dohme, with his characteristic energy, has gone into the federation idea with all of the enthusiasm for which he is noted. He has submitted a plan of federation that is familiar to most of us here present, since it has been given prominence by the pharmaceutical press during the past few months. Briefly summarized, Doctor Dohme's plan proposes federation more quickly than can be expected if the project is to depend upon the prior raising of a large sum of money. He believes that the present national drug associations, with their already existing machinery of organization, with the wealth behind some of them, the numbers behind others, can be federated into a great body wielding tremendous influence, potential of great good to the public as well as to pharmacy. His plan employs for the federating, the present Council and House of Delegates of the A. Ph. A., with, of course, amended personnel and with enlarged powers. He also suggests several bureaus of service; a bureau of chemical aid and research, a bureau of legal information, a Bureau of employ-

*Read at meeting of New Jersey Pharmaceutical Association, June 1918.

ment, a bureau for the exchange of certain goods and last, but most important, a legislative bureau designed to protect pharmacy from the continual assaults made against its interests by overzealous or half-baked legislation.

That Doctor Dohme's plan is highly attractive goes without saying; that it will be difficult to accomplish is obvious; but that it is impossible as some of its critics seem to think, is not the opinion of the writer, who has been forced by his work on the Federation Committee to give it careful attention.

It would be the height of bad taste for the writer or any member of the Federation Committee to express positive opinions as to details of any federation plan until the committee as a whole has arrived at some positive conclusions. The problem is too big to decide in a few weeks or even a few months. Our committee has already learned that it is well-nigh impossible to arrive at a decision by mail; hence plans are now being inaugurated to hold a committee conference in Chicago prior to the meeting of the A. Ph. A. in August.

On the other hand, a discussion of the general features of federation is both timely and important and this paper is being read for the main purpose of finding out the opinions of the members of this Association on the subject; to begin a discussion that may be of value to the Federation Committee in arriving at conclusions. In beginning this discussion the writer will quote what he has published elsewhere on the subject:

The general idea of federation is worthy of our most serious consideration, for the plan is laden with tremendous possibilities for good, if wisely planned, and is fraught with distinct danger if carelessly and hastily contrived.

No one can gainsay the immense influence that could be wielded by a united pharmaceutical America, retail, wholesale and manufacturing, when banded together in a common cause. Think of the legislative influence that could be wielded by the 100,000 Americans directly or indirectly interested in the drug trade, if welded into a flexible whole. Again, think of the possibilities of pharmaceutical betterment suggested by a huge federation with means enough at its disposal to conduct laboratories, legal bureaus and other aids available to every member of the federation. Most alluring is the picture thus presented.

On the other hand, the creation of such a federation will be accompanied by many difficulties. How can such diversified interests as manufacturing, wholesale and retail pharmacy, get together upon a broad basis of mutual agreement? It can be done only by settling upon points of agreement and by leaving the points of disagreement to the separate trade organizations. The differences of view-point existing among the various lines of pharmaceutical endeavor are no farther apart than are the view points of Oklahoma and New York, let us say. The experiment of federal government has stood the test of over a century, including a veritable test by fire, the Civil War. The success of this national federation of conflicting interests is largely due to the fact that basic principles of our Government are a federation for mutual defense; a confederation for mutual benefit. As long as our Government stands for these two principles, as long as it abstains from attempts to force the local opinions of New York upon Oklahoma, and *vice versa*, its success is assured.

In the proposed pharmaceutical federation, the same spirit should prevail. We have ever with us a need of defense in the thousand different kinds of legislation that zealots outside of the calling try to force upon the trade. The first principle of the federation should therefore be uniformity in legislative matters and a strong committee consisting of members of the legislative committees of the several national associations should be the first duty of the federation. The Drug Trade Conference has shown what can be done in this line when action is based on mutual interests rather than class advantages, and if the pharmaceutical federation becomes an accomplished fact, it will take over the present functions of the Drug Trade Conference.

One of the greatest bonds that binds the several States of our Union together is the service rendered by the Federal Post-Office Department and similar bureaus whose heads form the

National Cabinet. Even so, if the pharmaceutical federation is to succeed, it must have service features that can be used by all diversified branches of American Pharmacy. As mentioned above, it is in this direction that the Dohme plan is peculiarly attractive.

That is as far as the writer cares to go in expressing, for the present, his views of the proposed federation. He desires to hear the views of others, notably of those who have had active connection with other national pharmaceutical bodies, which must be included in the federation if it is to be a real success. He stands ready to explain, to the best of his ability, details of the several plans of federation that have been thus far proposed. And above all, he urges this Association to see that it is represented by its strongest members at the meeting of the House of Delegates of the A. Ph. A. in Chicago when the federation idea is to be discussed from all angles.

THE ACID TEST.*

BY J. W. STURMER.

In these trying days the motives of men, their aims, their capabilities—and their weaknesses as well—are more apparent than was the case when times and conditions were normal. For the conditions under which we now live, and work, subject us all to the severest tests. American pharmacists have never been tested as they are being tested at this time of stress. If they stand the test, the future of pharmacy will be assured. And so far they have shown up splendidly.

But there are false prophets and bad advisers. These like the poor, are with us always. Certain influences are at work to repeal or emasculate our pharmacy laws. And the argument, forsooth, is that we must adjust ourselves to war conditions. So we must, indeed. But were pharmacy laws passed for the pecuniary benefit of pharmacists, or were they passed for the protection of the public? Are the barriers to be raised or lowered in accordance with the supply of clerks—without reference to other considerations? If so, these laws are to be considered as class legislation, and would be un-American and in fact unconstitutional. If these laws were enacted for the public good—and we at least know full well that such was indeed the case—then the question is pertinent, do war conditions confer upon any man, or any group of men, license to ignore the dictates of public policy? Is human life less sacred because we are engaged in war? Now that our boys are fighting on foreign soil, are we, who have been intrusted to hold the last line of defense, to be less alert in the protection of the families of these boys in the first line trenches, just because we are becoming injured to a long casualty list? The answer may be deduced from the fact that our governments—national, state and municipal—are putting forth greater efforts than ever before in controlling epidemics, in reclaiming the physically unfit, in reducing infant mortality, in safeguarding the laborer at his work, in conserving our food and our fuel. Life must be risked in battle. For that very reason, it must be conserved at home. Under these circumstances, the duties and the obligations of pharmacists are clear, and the agitators who at this time, endeavor to weaken our pharmacy laws, will find no supporters within the ranks of the real pharmacists. It is to the lasting credit of pharmacists and pharmaceutical associations that they lead the fight for

* Read before Pennsylvania Pharmaceutical Association, 1918 meeting.

pharmacy laws, and welcome the regulations indicated by public policy. These self-same pharmacists and pharmaceutical associations will deem it their patriotic duty to maintain these regulations at any cost, and against all assailants.

To be sure, some kind of readjustment is imperative. Pharmacists are but human. They can work only so many hours. They, like other workers, need rest, out-of-door recreation, and some diversions. They should have them. They will work the better because of them. But is it not possible, in the larger stores and even in the medium-sized stores, to "departmentalize" and to conserve the professionally trained for the sale and compounding of medicines, using mere salesmen and saleswomen in the package goods departments and for the side lines? Indeed, I would say that such a plan has been in operation in many city stores and has not only proven its feasibility, but has been most profitable. Then, women should be encouraged to take up pharmacy, for which their fitness has been conclusively demonstrated. This, of course, is not so much for the relief of the present emergency as to provide for the future, as these women must be trained in a systematic and thorough manner.

And as for the pharmacist in the one-man store, he also needs his hours of recuperation. To obtain them, he can close at specified hours. But it would seem that public interest should be considered in this, and that, in place of closing all the stores of any given locality at the same time, there should be a system of rotation, so that some trained pharmacist may at all times be available.

In conclusion, permit me to point out that the condition created by the enlistment of thousands of physicians, has augmented the purely medical duties of those physicians who have remained behind to serve the civilian population—and this to such an extent, that many who in the past dispensed their own medicines, now find it practically impossible to continue such practice. This is, therefore, the great opportunity for pharmacy. It has been said, and justly so, that the medical man in the army should be relieved of all non-professional duties, and it has been proposed that the pharmacist should assume those duties. To bring this about, certain officers in high command must be converted, or legislative enactment must be had.

But in civil life, no such obstacles are in the way, and prescription writing may reasonably be expected to increase, as a result of the dearth of civilian physicians, and the added duties devolving upon each, along the lines of purely medical service. And if pharmacists in civil life succeed in reclaiming the position they once held, the pharmacists in the army will find their chances for recognition improved correspondingly. Is this, then, the time to lower the bars, and to let in incompetents? The war has developed a keener realization of the duties of citizenship. Every good citizen must render service. So must every profession. And to pharmacy comes, with the opportunity for service, the greatest opportunity for professional advancement which has presented itself within the memory of men now active. Under these war conditions, pharmacy cannot remain stationary; it must either rise or decline. The crisis is here. Hence I say that pharmacy is now being subjected to the acid test. We shall soon know its "metal." And I for one feel assured that it will prove to be royal metal—that pharmacy will meet the test.

SO-CALLED SYRIAN ALKANET, *MACROTOMIA CEPHALOTES*, D. C.*

BY CLARE OLIN EWING AND JOSEPH F. CLEVINGER.

A sample of "Alkanet," recently submitted for our examination, proved to be, not the root of true Alkanet (*Alkanna tinctoria* Tausch), but that of so-called Syrian Alkanet (*Macrotomia cephalotes*, D. C.). Both the plants named belong to the *Boraginaceae*, and are indigenous to Asia Minor and southeastern Europe.

Previous investigators have observed alkannin-like tinctorial principles in other members of the Borage family. Vogtherr¹ has noted several foreign pigment-bearing species of *Boraginaceae*, and has discussed *Macrotomia cephalotes* in some detail. His description of "Syrian Alkanet" is accurate, although his accompanying sketch shows a root somewhat larger than any which we have observed. From *Macrotomia* he extracted 9.13 percent of a crude coloring matter which "seemed to be identical with that of Alkanet." His paper does not indicate the solvents or methods used in extraction. Coloring matters have also been noted by Norton² in a number of American *Boraginaceae*. While this investigator made no analysis of the tinctorial principles of his material, by testing with resins and oils he obtained an alkannin-like reaction from the leaves and roots of *Plagio-bolthrys*, and suggested the possible utilization of some of these plants.

The submitted sample (Fig. 1) was easily distinguishable from true alkanet root. It was very much larger in size; it occurs in pieces from 20 to 40 cm. long and 2 to 5 cm. thick, whereas alkanet is about 1 to 1.5 cm. in diameter and is usually 10 to 15 cm. long, although it sometimes occurs in pieces up to 25 cm. in length. The sample also was many headed, in contradistinction to the one or few heads of alkanet. It was black-violet in color and somewhat metallic in appearance, whereas alkanet is of a dull maroon color. Alkanet is only slightly twisted, while the "Syrian Alkanet" had a distinctly spiral twist, resembling a twist of tobacco. Vogtherr's figures shows a specimen with a much shorter spiral than any which we have observed. A section of alkanet shows that the wood is centrally placed and is surrounded by a tissue of loose, almost spongy texture. In the sample of "Syrian Alkanet" the wood, which was straw-yellow in color, was laterally placed and was accompanied by a layered coffee-brown-gray tissue on the inside, and a blackish violet color on the outside.

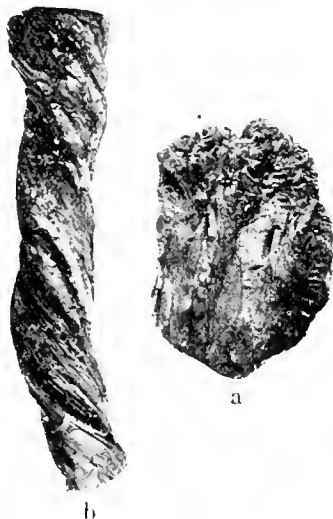


FIG. 1.
Root of *Macrotomia cephalotes*.
a.—Top showing heads.
b.—Portion of main body.

* Contribution from Pharmacognosy Laboratory, Bureau of Chemistry, Department of Agriculture, Washington, D. C.

¹ Vogtherr, "Über Alkanna und ihre Verwaudten," *Pharm. Centralh.*, 37, 148-52 (1896).

² Norton, "The Coloring Matter Found in Some *Boraginaceae*," *Amer. Journ. Pharm.*, 70, 346-8 (1898).

Samples of both products were ground to a No. 20 powder and the coloring matter completely extracted from 10-gramme samples with chloroform in a Soxhlet extractor, the extract evaporated on the steam bath and dried at 100° C. It amounted, in the case of true alkanet to slightly over 5 percent; in the "Syrian Alkanet" it amounted to about 9 percent. The colored extract, crude alkannin from alkanet is generally reported as varying from about 4 to 6 percent, depending somewhat on the solvent used. As mentioned above, Vogtherr reports 9.13 percent of extract for a sample of "Syrian Alkanet," but does not indicate the nature of the solvent.

Both extracts were dark brownish red, metallic glistening masses, the Syrian Alkanet being a trifle darker. They softened under 100° C. (steam bath) without having a definite melting point. This was due, no doubt, to the wax which, according to Liebermann and Römer³ is, after alkannin, the principal constituent of the extract. They isolated this wax from commercial crude alkannin and found it to be hydrocarbon melting at 75° C.

The alcoholic solution of both extracts varied from cerise to a dark red, depending upon the concentration. The colors apparently were very nearly identical, that from Syrian alkanet being perhaps of a more purplish shade. Colorimetric comparison of solutions of the two extracts of similar concentration showed that the proportions of coloring matter in both were approximately the same.

Gawalowski¹ has stated that the coloring matter of alkanet is not a single chemical individual, but contains two coloring constituents. The first, which is extracted with petroleum ether, he called anchusic acid (anchusa red), and ascribed to it the probable formula $C_{30}H_{39}O_7$; the second, which he extracted with ether and alcohol, he called alkannic acid (alkanna red) and ascribed to it the probable formula $C_{15}H_{14}O_4$ (or $C_{30}H_{28}O_8$). In view of this statement, fractional extraction was made of both products, with the following results:

| | Alkanet. | "Syrian Alkanet." |
|-------------------------|--------------|-------------------|
| Petroleum ether extract | 3.36 percent | 4.69 percent |
| Ether | 1.22 percent | 3.64 percent |
| Chloroform | 0.61 percent | 0.66 percent |
| | trace | trace |
| | 5.19 percent | 8.99 percent |

Both of the petroleum ether extracts were bright red in color, dark red in thicker layers. The ethereal extracts were of a purplish black color and were insoluble in petroleum ether. Both had an odor of acetic and butyric acids, similar to that which we have noted in a commercial specimen of crude alkannin. The chloroform extracts were also of a purplish black color and were insoluble in ether and petroleum ether. The alcoholic solutions of the petroleum ether extracts were of an intense bright red color. The alcoholic solutions of the ether and chloroform extracts were of a less intense purplish red color than those of

² "Über Alkannin," *Ber.*, 20, 2431 (1887).

³ Gawalowski, A., "Die Pigmente der 'Radix Anchusa tinctoria' in ihrer Bedeutung für die alkalimetrische und acidimetrische Analyse," *Zeit. anal. Chem.*, 42, 108-9 (1913).

petroleum ether, the difference in intensity and shade being more pronounced in the higher dilutions. The large amount of the ether and chloroform extracts in the Syrian Alkanet explains the purplish tint of the preliminary chloroform extract noted above. The color tests, which are tabulated below, show that the material extracted by petroleum ether differed chemically from those extracted by ether and by chloroform. Although the two latter were obtained separately, their reactions with the various reagents used were similar and they are therefore not listed separately.

COLOR REACTIONS OF ALKANET AND SYRIAN ALKANET.

| | Alkanet. | | "Syrian Alkanet." | |
|------------------------------|---------------------------------------------------|---------------------------------------------|---------------------------------------------------|---------------------------------|
| | Petroleum ether. | Ether and chloroform extract. | Petroleum ether extract. | Ether and chloroform extracts. |
| Basic lead acetate.. | Deep purple color and precipitate | Bluish gray color and turbidity | Deep purple color and precipitate | Bluish gray color and turbidity |
| Uranium acetate.. | Bluish gray color | Dirty green color | Bluish gray color | Dirty green color |
| Ammonium hydrosulphide..... | Indigo-blue color; purplish shade | Violet color | Indigo-blue color; less purplish | Violet color |
| Potassium hydrosulphide..... | Indigo-blue color | Light blue color; faint suggestion of green | Indigo-blue color | Light greenish blue color |
| Stannous chloride. | Cherry-red color; yellow after addition of HCl | Paler color than P. E. extract | Cherry-red color; yellow after addition of HCl | Paler color than P. E. extract |
| Ferric chloride..... | Dark violet color and turbidity | Dirty greenish brown color | Dark violet color and turbidity | Dirty greenish brown color |
| Mercuric chloride.. | Bright cherry-red color; purplish red precipitate | Pink color | Bright cherry-red color; purplish red precipitate | Pink color |

In addition to the above reactions, the color of all three extracts of both the alkanet and the "Syrian Alkanet" was destroyed when a few drops of a saturated solution of bromine water were added to a dilute alcoholic solution; the color was restored by the subsequent addition of several drops of 3 percent hydrazine sulphate solution. This reaction is considered by Mathewson⁵ to be quite specific for alkanet.

An extract of "Syrian Alkanet," prepared with 95 percent alcohol, diluted with water to 50 percent concentration of alcohol, gave very satisfactory results in this laboratory and in the Microbiological Laboratory of this Bureau in the staining for microscopic observation of sections containing fats (soy beans, castor beans, yellow mustard seed, etc.) and resins (podyphyllum rhizome and white bryony root).

The specimen of "Syrian Alkanet" was clean and free from dirt and other foreign materials. The genuine alkanet, while apparently quite clean, upon close inspection showed the presence of minute particles of sand, which adhered very tenaciously to it. We have observed this condition in a number of other commercial specimens of alkanet. Ash and ash-insoluble determinations on two-gramme portions of the No. 20 powder gave the following results:

⁵ Mathewson, W. E., "Separation and Identification of Food-Coloring Substances," Department of Agriculture, *Bull.* 54, 448 (1917).

| | Alkanet. | "Syrian Alkanet." |
|----------------------------------------------|--------------|-------------------|
| Total ash..... | 17.0 percent | 11.7 percent |
| Acid-insoluble ash..... | 8.0 percent | 0.8 percent |
| The ash in both cases was high in carbonates | | |

From the above data it may be seen that the coloring extracts from both plants consist of at least two chemical individuals and that both extracts are very similar in nature. In view of the fact that in Syrian Alkanet the coloring extract was present in much larger amount than in the true alkanet, and possessed equivalent tinctorial strength, it would appear to be a valuable substitute for the latter.

THE ESTIMATION OF ALCOHOL.*

BY C. R. HARER.

While the estimation of alcohol in pharmaceutical preparations is not very complicated, nevertheless, presents many difficulties and affords opportunities for experiment and research.

Frothing, in numerous cases, is readily controlled by tannic acid; while in particular instances sulphuric or phosphoric acid, as advised by some writers may be preferable, I find tannic acid more generally practical, although the variation of its action with different drugs has not been determined. After the addition of tannic acid to fluidextracts of gelsemium, helonias and several other drugs, they must be heated very rapidly to boiling to control the frothing. The addition of tannic acid to fluidextracts of black haw, mango bark and several others increases the frothing instead of retarding it. The addition of tannic acid to preparations of cinchona produces an uncontrollable frothing when heated, while if heated slowly without tannic acid, the liquid will froth at first, but the foam will soon subside and regular boiling take place; the initial frothing may be almost instantly eliminated if the liquid is heated rapidly in such a way that the flame is thrown on the upper part of the distilling flask for a few seconds, when the liquid starts to boil.

The estimation of alcohol in fluidextract of sarsaparilla presents greater difficulties than many other preparations, and the following experiments were undertaken for the purpose of finding a convenient and rapid method for its determination: Mechanical methods (paraffin, fixed oils, etc.) to control the frothing were tried, but without success. Baryta water was then used to precipitate the saponins and resins, but this gave no satisfactory results. Several experiments were made by adding a suspension of aluminum hydroxide to the fluidextracts also by adding an aluminum salt to the fluidextract and subsequently precipitating the hydroxide with a caustic alkali. These experiments were failures. Next an addition of the official solution of lead subacetate was tried, but I found that a direct distillation of fluidextract of sarsaparilla with lead subacetate solution was impracticable because frothing was unavoidable and it was impossible to separate the aqueous alcoholic liquid quantitatively from the voluminous gelatinous precipitate by fil-

* Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

tration; however, the following method yielded satisfactory results: Fifty mls of the fluidextract was transferred to a 100-ml cylinder, 15 mls of solution of lead subacetate was added, and sufficient water to make 100 mls. The mixture was thoroughly shaken and 50 mls, equivalent to 25 mls of fluidextract, was filtered off. This was transferred to a distilling flask, sodium bicarbonate was added to an alkaline reaction, followed by a slight excess of tannic acid. Generally traces of acetic acid are present in the distillate, but in such small quantities as not to influence the results.

In order to ascertain whether or not the method gave accurate results, the following experiments were made: 200 mls of the fluidextract of sarsaparilla was evaporated to a syrupy consistency; this residue to which 50 mls of water was added twice, which each time was evaporated, was taken up in water and transferred to a 200-ml flask; 90 mls of 94% alcohol was added and enough water to make 200 mls. Two distillations were made with this dilution and 41.5 percent and 41.2 percent of alcohol was found. At the same time a volume of water approximately equal to that of aqueous solution of the residue was placed into a 200-ml flask, 90 mls of 94% alcohol was added and sufficient water to make 200 mls. The sp. gr. of this aqueous-alcoholic mixture showed that the liquid contained 42.3 percent of alcohol. When 25 mls of this aqueous-alcoholic solution, to which 50 mls of water and 3 mls of solution of lead subacetate had been added, followed by sodium bicarbonate to an alkaline reaction and then tannic acid to an acid reaction, was distilled, 41.3 percent and 41.4 percent of alcohol was found. In the latter distillation approximately the same conditions are given as in the distillation of the liquid which is obtained by treating the fluidextract of sarsaparilla with lead subacetate solution and filtering.

The estimation of alcohol in preparations containing volatile substances presents another interesting part of this kind of work. Volatile alkali can easily be eliminated by adding tannic acid or other suitable acids, preferably phosphoric acid, while volatile acids can be taken care of by adding a fixed alkali; substances, however, like camphor, volatile oils and chloroform can be removed only by special processes.

The U. S. P. directs that the sample containing volatile substances be distilled in the usual way, the distillate transferred to a separator and saturated with sodium chloride; 15 mls of petroleum ether are then added, the mixture is thoroughly shaken and allowed to separate. The salt solution containing the alcohol is then drawn into another separator and washed once with petroleum ether. The combined ethereal solutions are washed once with 10 mls of a saturated solution of sodium chloride, which is added to the aqueous solution. The combined aqueous liquids are then distilled and the alcohol estimated in the usual way.

For liquids containing chloroform, the U. S. P. method gives satisfactory results, as the following experiments show:

Sample No. 1.—Seven mls of chloroform was transferred to a 200-ml flask and sufficient diluted alcohol (about 45 percent) was added to make a total volume of 200 mls. Three determinations of alcohol of this sample by the U. S. P. process gave 44.43.65 and 44 percent.

Sample No. 2.—Seven mls of water was transferred to another 200-ml flask and enough of the above hydro-alcoholic solution was added to obtain 200 mls. The sp. gr. of this sample indicated 45.55 percent of alcohol, while the determination of the alcohol by distillation gave 44.5 and 44.83 percent of alcohol.

While there is quite a difference of opinion as to the best method of estimating alcohol in liquids containing volatile oils, the U. S. P. method as previously stated and the N. F. IV process, which directs distilling the liquids, shaking the distillate with magnesium carbonate and filtering, are generally used. Very good results can be obtained in preparations containing a mixture of volatile oil and alcohol, or oils, alcohol and water without other extractive matter, such as spirit peppermint, spirit myrica, by eliminating the oil first, then distilling and taking the gravity of the distillate as the following experiments show; for these experiments a concentrated fluid of bay laurel was made containing about 20 percent of the combined oils pimento, myrica, and orange and 66.15 percent of absolute alcohol.

Experiment No. 1.—Twenty-five mls of the fluid was transferred to a separator containing 20 mls of saturated solution of sodium chloride and 20 mls of petroleum ether was added. The separator, containing the mixture, was thoroughly shaken and the liquids allowed to separate. The alcoholic liquid together with the salt which had separated from the solution when the fluid was added, was drawn into another separator and washed with a second portion of petroleum ether. It was then transferred to a distilling flask. The combined petroleum ether was washed with 10 mls of a saturated salt solution which was also transferred to a distilling flask and the combined aqueous-alcoholic liquids were distilled. The sp. gr. of the distillate indicated the presence of 56.9 percent alcohol, while a check experiment indicated 57.2 percent.

Experiment No. 2.—This experiment differs from the preceding only in that when the fluid was added to the 20 mls of salt solution, enough water was added to redissolve the salt which had separated. By this method 62.1 and 62 percent of alcohol was obtained. This seems to indicate that in the presence of excess of salt, some alcohol is carried mechanically into the petroleum ether with the oils.

Experiment No. 3.—Twenty-five mls of the fluid was transferred to a separator and saturated with sodium chloride and after the addition of 20 mls of petroleum ether the mixture was shaken. When the liquids had separated, the aqueous-alcoholic layer was drawn into another separator and washed with another portion of petroleum ether; the combined ethereal liquids were washed with 10 mls of saturated salt solution, which was added to first solution. The combined aqueous-alcoholic liquids were then distilled and the distillate was found to contain 64.6 percent of alcohol, while a check experiment indicated 64.7 percent.

Experiment No. 4.—Twenty-five mls of the fluid was transferred to a separator, 20 mls of saturated salt solution was added and enough water to dissolve the salt which had separated. After the addition of 20 mls of petroleum ether, the estimation was carried out in the usual way, with the exception that after the petroleum ether had been washed with 10 mls saturated salt solution, it was washed with two portions of 10 mls each of water. By this process 65 and 65.2 percent of alcohol was obtained.

Experiment No. 5.—This experiment was made by following the exact directions of the U. S. P., 65 and 65.3 percent of alcohol was found.

Experiment No. 6.—Twenty-five mls of the fluid was transferred to a distilling flask and after the addition of 50 mls of water, the mixture was distilled. The distillate was shaken with talcum and filtered. It contained 64.9 percent of alcohol and a check experiment gave 64.7 percent of alcohol.

Experiment No. 7.—As a last process Richter's modification (*Pharm. Zeit.*, 1914, page 431) of a process originated by Thorpe and Holmes (*Jour. Chem. Soc.*, XIX, page 259) was applied. This method is very simple and gives accurate results and is carried out as follows:

Thirty mls of the fluid is mixed with 30 mls of a 15% sodium chloride solution and 30 to 40 mls of petroleum ether boiling below 60° C. is added. The mixture is shaken well in a separator and then allowed to settle; when the lower layer has become clear, it is drawn off and, if necessary, filtered with a small amount of magnesium carbonate, 50 mls of the filtrate representing 25 mls of original sample is distilled. 65.8 and 66.1 percent of alcohol was obtained by this method, which percentage agrees closely with the theoretical amount.

The results appear tabulated as follows:

| Process..... | 1. Percent. | 2. Percent. | 3. Percent. | 4. Percent. | 5 U. S. P. Percent | 6. Percent. | 7. Percent. |
|--------------|----------------|----------------|----------------|----------------|-----------------------|----------------|----------------|
| 1st..... | 56.9 | 62.1 | 64.6 | 65.2 | 65.3 | 64.9 | 65.8 |
| 2nd..... | 57.2 | 62.0 | 64.7 | 65.0 | 65.0 | 64.7 | 66.1 |

The tabulation indicates that process VII yields the best results, while the U. S. P. and process IV yield very nearly the theoretical amount of the process alcohol present.

LABORATORIES OF SHARPE & DOHME.

THE REACTIONS OF GOLDFISH TO CERTAIN HABIT-FORMING DRUGS—THE USE OF THE GRADIENT TANK.

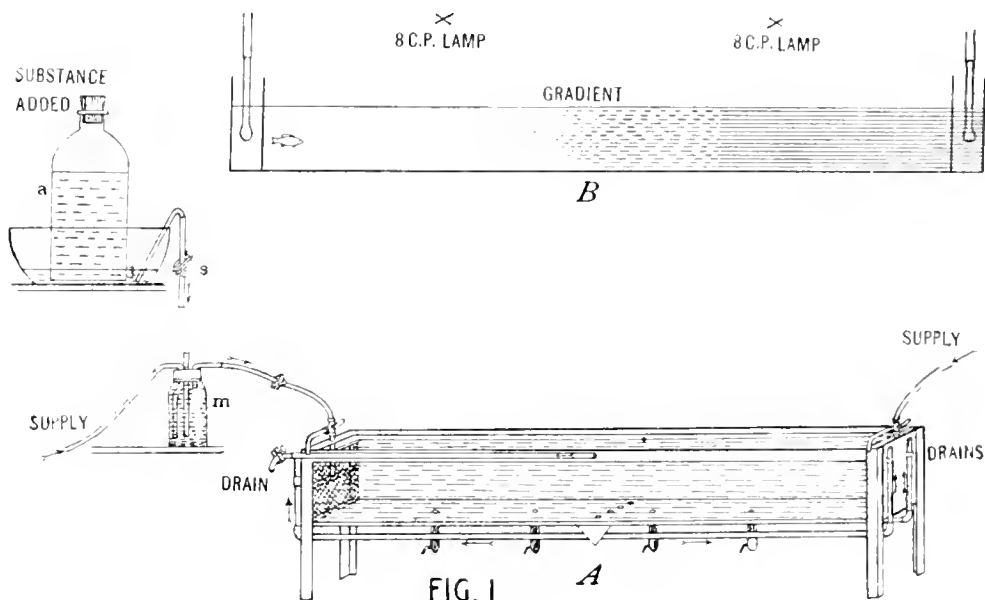
BY VICTOR E. SHELFORD.

The problem of the cause of the development of the drug habit, *i. e.*, of the peculiar effects of habit-forming drugs which cause the user to crave them, has been approached from several different angles, but none of them have afforded a solution. Attention appears to have been directed especially toward morphine and related compounds.¹ The theory that morphine causes the formation of oxymorphine, which produces an effect the opposite of morphine, has been exploded by the discovery that oxymorphine is not formed and that its effects are not the opposite of morphine. The idea that immunity is developed is rejected because of the fact that such immunity does not exist in animals which are habituated by the use of morphine. The increased capacity of the organism to destroy morphine is not an adequate explanation as morphine is very slowly destroyed.

Most of the work has been done on mammals, some on frogs, but I find almost nothing in the literature that shows the development of anything like a craving, taste, or preference for the substance in question, on the part of the lower vertebrates. In fact it is not easy to show that these animals are so affected. By chance the writer discovered that fishes are peculiarly affected by numerous organic substances in aqueous solution, when put under special experimental conditions. These conditions are established in a long, narrow tank, 122 cm. long, 15 cm. wide and 13 cm. deep (see Fig. 1-A), in which water containing a drug flows into one end and out at both top and bottom, at the middle, while water which contains none of the drug flows into the other end at the same rate. The two flows meet at the middle and with most substances there is a mixture of the two kinds of water which occupies the center third of the tank. In this mixture a fish moving from the pure water end toward the drug-containing end encounters a gradual rise in concentration of the drug. This region of change of concentration is called the gradient. The character of the gradient in these tanks has been fully determined, by taking samples, by measuring conductivity, and by the use of colored water. Usually a sample which contains none of the salt or any amount from the faintest traces up to the full concentration introduced, may be withdrawn (Fig. 1-B). Some substances diffuse almost through-

¹ Sollman Manual of Pharmacology, 1917.

out the tank, so that the gradient, or region in which there is a rise in concentration extending from near the pure water end toward the end in which the drug is introduced, reaches almost the entire length of the tank.



GRADIENT TANK (A). LONGITUDINAL SECTION OF TANK (B).

Figure 1-A:—The gradient tank and apparatus for introducing drugs into one end. The water flows into the two ends of the tank from a common source. The flow is adjusted with a pinch cock on a rubber hose at the right-hand end, for example, at 500 Cc. per minute. This is done by turning the 3-way valve so as to run the water outside of the tank through the small spout which ends at the water level just outside of the tank. The water can be caught here in a graduate for a definite length of time and the flow per minute determined. The flow at the end into which the drug is added may be set at, say, 400 Cc. per minute and then sufficient of the drug solution added to the mixing bottle from the siphon above at the left (100 Cc.) to make this 500 Cc. also. The solution of a non-volatile drug is siphoned (see Fig. 1-A) from dish in which is a 12-liter aspirator bottle (*a*) with the upper opening tightly corked and the lower one open. When the water in the dish falls below the level of the lower opening a few bubbles of air slip in and the same amount of fluid flows out, thus maintaining a constant level in the dish as long as the supply in the aspirator bottle holds out. Volatile substances have usually been added directly from the lower opening of the aspirator bottle. In this case it is necessary to correct the flows occasionally. The drug solution is run into a mixing bottle (*m*) which is connected in the flow of pure water.

Figure 1-B shows a longitudinal section of the tank when a substance is introduced at the left-hand end. The substance is shown by black markings. The central portion shows a gradient between pure water (white) and black lines. The graphs are drawn on the basis of the position of the fish in this longitudinal section.

In order to discuss the behavior of fishes in habit-forming substances, it is first necessary to note in detail what happens when (1) a fish encounters no change in water and (2) when it encounters water containing a quantity of carbon dioxide or other environmental substance. When the water is the same throughout fishes usually go back and forth in the tank either without turning around in

the middle or, if so, without showing any preference for either end. Graph 1 shows the usual movement of an active goldfish which went back and forth, and though it turned around in the middle third of the tank occasionally, it turned the same number of times when headed each way, even in the short 20-minute period. Graph 9 shows a control graph in which an inactive fish staid near the center. Graph 10 shows the behavior of a minnow which swam from end to end, except for stopping under the lights—a reaction quickly masked by response to another stimulus. When introduced into a tank in which the water running into one end is charged with carbon dioxide up to about 15 Cc. per liter, or more, the fishes act in a very striking and characteristic way (2). When they swim into the acid water, the fishes undoubtedly sense deleterious concentrations of CO_2 upon entering it. They give evidence for this by the following activities, as shown by an earlier set of experiments:² A definer reflex was often given by minnows (*Abramis*, *Notropis*, *Hypopsis*) and sunfishes (*Lepomis*), the first time they entered the modified water. The fish suddenly stops, backs quickly a few millimeters, and then starts ahead again, often repeating the reflex before going farther forward. In an earlier paper, this was called the backing-starting reaction. This may be due to stimulation of the nostrils, as Sheldon³ states that stimulation of the nostrils of the dogfish results in a quick jerk of the head. There is acceleration or increased vigor of movement of fins, tail, or body, which begins at once or after a very short time. Sheldon found that the application of solutions to these parts caused them to be moved. The opercles were lifted, the lower jaw protruded, or the mouth moved in a manner characterized as coughing, gulping or yawning. Sheldon found that stimulation of the mouth or spiracle gives rise to violent gulps. In our experiments these reactions occurred singly or in combination. The time necessary to produce them was variable, but depended upon the strength of the stimulus, which confirms further observations by Sheldon.

When a fish enters a deleterious solution of alcohol, cocaine, morphine, or any one of the several other substances, nothing of the kind ordinarily happens. There is no rejection of the drug containing water, no gulping or raising of the opercles. The fish swims into the water apparently without noting any change. After a few entrances it begins to turn back from the normal, pure water, or from the lower concentrations of the drug in solution just as from carbon dioxide, but usually without the gulping, or any of the other movements which follow stimulation. This was first noted in the study of the reaction of the golden shiner to ammonia in 1911.⁴ It was again observed in the study of the reactions of a number of species of fish to coal-tar products in connection with a study of the effects of stream pollutions.⁵ Fishes of various species showed a *preference for*, that is, *reacted positively to*, coal-tar products, various mixtures of them, and gas liquor. The species giving positive reactions were the large-mouthed black bass, minnows (*Notropis*, *Pimephales*, *Abramis*), rockbass, and three species of sunfish.

The substances for which the fishes showed the preference as described, and to which they are said to react positively, are the following: Ammonia and

² Shelford & Allee, *Jour. Expt. Zool.*, 14, 208-256; *Jour. Animal Beh.*, 4, 1-30.

³ Sheldon, *Jour. Comp. Neurol.*, 19, 273-331.

⁴ Shelford and Allee.

⁵ Shelford, *Bull. Ill. St. Lab. of N. H.*, 11, 383-411.

several of its salts, aniline, pyridine, isoquinoline, sulphur dioxide, carbon disulphide, thiophene, acetone, phenol, paracresol, phenanthrene, naphthalene, xylene, toluene, acetylene, illuminating gas, and waste.

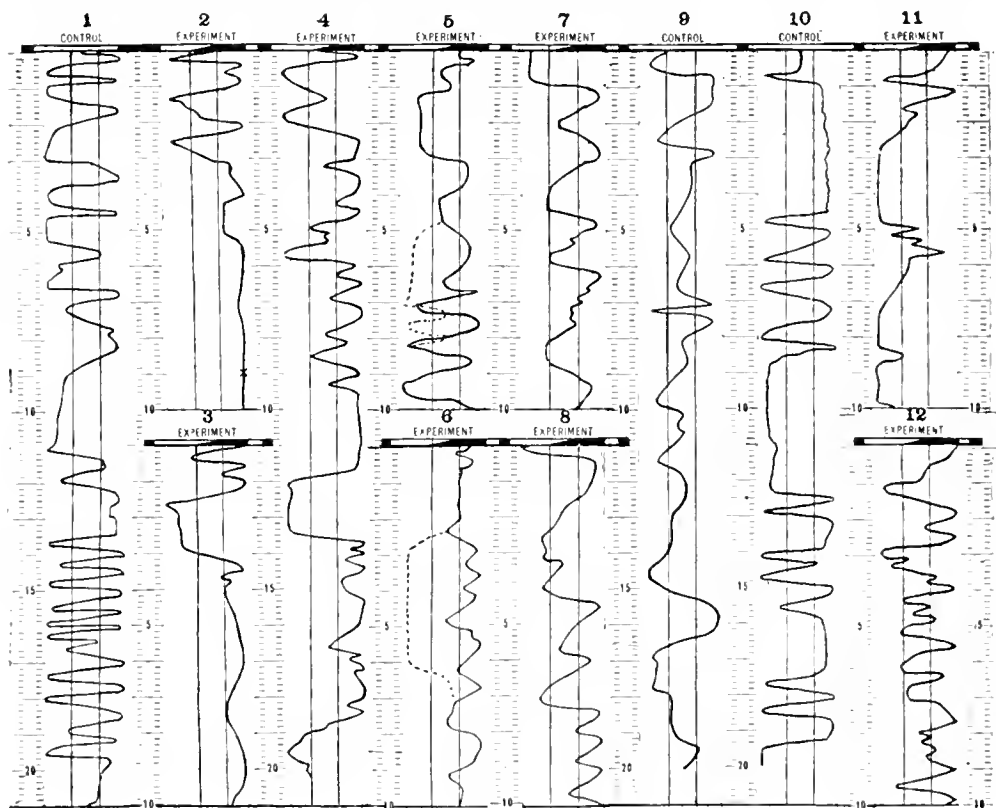


CHART 1.

The graphs on this chart, numbered 1, 9, and 10, show the movements of fishes in the gradient tank when no drug has been added at the end, and the water is therefore of equal purity throughout.

The gradient tank is shown in Figure 1-A. Figure 1-B is a diagram of a longitudinal section of the tank; the left-hand end was used for the introduction of water such as the fishes had been kept in, and the right-hand end was used for the introduction of water to which the substance being tested had been added. The light vertical lines are intended to indicate the location of thirds of the tank length. The solid black area at the right between the two lines at the head of each graph is intended to show the part of the tank in which the drug solution is nearly the full strength of that flowing in, and the narrowing of this black area from right to left in the middle third is intended to indicate the region of principal gradient; X indicates that the fish became intoxicated.

Graph 1 shows the usual back and forth movement of a goldfish when not encountering any difference in the water in the two ends—a control experiment.

Graph 2, positive reaction of a goldfish to water containing 0.35 Gm. cocaine hydrochloride per liter introduced at the right. The fish turned back on encountering a slight dilution after 40 seconds, swam the entire length of the tank twice, turned back on encountering a slight dilution at the end of four and a half minutes and remained in the highest concentration of the drug until intoxication resulted.

Graph 3, the same as the preceding, but a different fish; shows a strong preference for the cocaine solution and an avoidance of the pure water.

Graph 4 shows a positive reaction of a goldfish to a 1.5 percent solution of ethyl alcohol introduced at the right-hand end. The fish turned back repeatedly from the pure water after trying out the tank during the first three minutes. A graph of the reaction to 10 percent alcohol resembled No. 3 very closely.

Graph 5, an indifferent reaction of two goldfish to 0.15 Gm. per 1 Gm. of morphine hydrochloride. Where the two fishes moved together only one line appears; where separately, one of them is indicated by a broken line.

Graph 6, a positive reaction of two goldfish to 1 Gm. per 1 Gm. of morphine hydrochloride per liter. One fish was negative to the water without morphine from the beginning; the other spent three minutes in the pure water beginning at the end of three minutes.

Graph 7 shows a positive reaction of a goldfish to water half saturated with naphthalene; Graph 8, to saturated naphthalene. In both cases the fish became positive to the naphthalene at once.

Graph 9 shows a control movement of a sluggish goldfish.

Graph 10, a control movement of a wild minnow (*Pimephales*).

Graph 11, a negative reaction of such a minnow to 1-2 percent alcohol.

Graph 12, a positive reaction after the fish had been kept for 30 minutes in a 0.5 percent solution of alcohol.

Fishes are not invariably positive to all of these, as the positive reaction is often determined by concentration, character of the dissolving water, etc., but positive reaction is the usual rule. While ether, chloroform, chloral, and paraldehyde are habit-forming in the case of man, I find no records in the general works for any of the coal-tar products noted above. Since the goldfish has been used as a test animal in drug standardization, it was thought desirable to test its reactions to two or three habit-forming drugs. Cocaine hydrochloride, morphine hydrochloride, and ethyl alcohol were chosen. The standard gradient tank with symmetrical incandescent lights and a hood were used with general results as described on p. 598. Because of the large amount of water used it has been impracticable to carry on the experiments in distilled water. They were conducted in water such as the fishes had been kept in.⁶

COCAINE.

Only a few experiments were tried with this as the fishes were positive to all concentrations tried. In 0.35 Gm. of the hydrochloride per liter the goldfishes were positive at once, *i. e.*, turned back on encountering the pure water (Graphs 3 and 4). They became intoxicated and died in the high concentration end. No reactions such as follow peripheral stimulation with CO₂ were noted. The graphs show that after two or three minutes' exposure and a few turnings they remained in the higher concentration of the drug.

ETHYL ALCOHOL.

Goldfish were positive to 1.4 percent alcohol, as shown in Graph 4. Waters with less alcohol or no alcohol were quite consistently avoided. Their reaction to 0.5 percent is usually negative. Their reaction to 1 percent alcohol was positive and remained so consistently for two hours, when some nervousness and excitability occurred which lasted for five hours more in which the fishes spent most of their time in the more dilute alcohol of the center of the tank, but avoided

⁶ For analysis and comment see Wells, *Biol. Bull.*, 29, 226-227.

the pure water. When 2 percent alcohol was used they remained clearly positive for six hours. With 3 percent alcohol they remained clearly positive for three hours, when they became nervous and slightly tipsy. At this condition they appeared not to note the difference between the two ends, but still spent most of the time in the alcohol end. Their reaction was decidedly positive to 10 percent alcohol. They occasionally moved toward the low concentration but turned back quickly on encountering a slight decrease in concentration. At the end of 20 minutes they were semi-intoxicated and the experiment was discontinued. In 20 percent alcohol they avoided the full strength but still gave a positive reaction for the short time they were under observation.

MORPHINE.

They appeared not to note 0.15 Gm. per liter of morphine hydrochloride, as shown by Graph 5, where the drug was not avoided, but no good evidence of any preference shown. In 1 Gm. per liter one fish showed a positive reaction throughout, while the other spent a little time in the pure water. Other individuals avoided the strongest morphine and pure water staying in the center of the tank and turning back from both ends.

NAPHTHALENE.

Goldfish are positive to half saturated and saturated solutions as shown in Graphs 7 and 8. It is only very slightly soluble but sufficiently so to kill fishes in an hour or more.

OTHER SPECIES.

Minnows of the genus *Pimephales* were found, in course of my experiments on pollution, to be more often negative than other species. This species was uniformly negative in reaction to alcohol up to three percent. After being kept 20 hours in $\frac{1}{4}$ percent it was negative to 1 to 2 percent, more negative than when kept in water. Fishes kept one-half hour in $\frac{1}{2}$ percent gave positive reaction to 1 to 2 percent; others kept 20 hours in $\frac{1}{2}$ percent showed a more positive reaction, showing that the preference for alcohol is developed by exposure to it, but that the fish is negative to concentrations to which the goldfish is positive.

TADPOLES.

A single experiment with a tadpole and 20 percent alcohol showed the animal positive and suggested the use of tadpoles about to transform into frogs as affording a well-known laboratory animal for such studies.

CONCLUSIONS.

These incidental preliminary observations indicate the following tentative general considerations:

a. That fishes quickly form a preference for water containing alcohol, cocaine, morphine, and certain other substances. They appear, as a rule, to avoid very weak concentrations and are in nearly all cases less positive at first. This with the habituation of minnows usually negative to alcohol by an exposure of 30 minutes in $\frac{1}{2}$ percent alcohol indicates that the sensory endings are quickly modified in their sensitivity.

b. The gradient $\tan^{-1} \frac{1}{200}$ may afford a means of studying "habit" formation and also of investigating compounds or combinations of drugs which may produce the desired therapeutic effect with least danger of creating an appetite. Results with fishes may differ from those obtained with man, but they may readily afford information which can serve to interpret results with higher forms.

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RAPID GENERAL ASSAY METHOD FOR ALKALI SALTS OF ORGANIC ACIDS.

BY A. B. LYONS.

Ignition of salts of organic acids is a tedious operation, even if one is satisfied merely with thorough carbonization of the organic compound. In the official general assay process (U. S. P. IX, p. 589) this is all that is required, yet the plan of dissolving out from the carbonized residue the alkali carbonate with aid of volumetric acid and heat, filtering out the carbon and washing out all the residual acid, calls for a considerable expenditure of time and labor.

It has been suggested by E. Elvove that conversion of the salt into a *sulphate* is to be preferred to simple ignition resulting in the formation of a carbonate, and no doubt equally good results can be obtained by this procedure. There is, however, no gain in time consumed, but by a very simple modification of the process it is made far more rapid than either of the other methods, with no sacrifice of accuracy in the results.

The following is the new procedure: Weigh accurately in a small beaker about 0.5 Gm. of the salt, add 20 mils of alcohol, to which has been previously added 10 drops of strong sulphuric acid, from a pipette delivering 60 drops to the mil. Stir the mixture well and let it stand a few minutes, then decant the alcoholic solution into a platinum or quartz dish. Wash the residue in the beaker by decantation with two successive portions of alcohol (5 and 3 mils), adding the washings to the dish. Set fire to the alcohol and allow it to burn off, then ignite the residue at a temperature not exceeding dull redness. Since the residue consists almost wholly of the organic acid of the salt, together with a little free sulphuric acid, the carbon will burn off, in a very short time, the ignition requiring no attention meanwhile.

Dissolve the residue of alkali sulphate in the beaker in a little hot water, and when the carbon has been practically all burned off from the first residue, cool the dish and add to it the sulphate solution, together with rinsings from the beaker. Evaporate the solution in the dish to complete dryness and ignite at a red heat until white. Cool in a desiccator and weigh as alkali sulphate.

Since the sulphate has not been in contact with carbon to any appreciable extent during the ignition it may be considered to consist (barring impurities in the salt) wholly of alkali sulphate. However, if there is any doubt about this, the salt may be dissolved in a little hot water, a drop or two of sulphuric acid added, the solution evaporated, and the residue once more ignited.

It is assumed in these general assay processes that the salt is substantially free from impurities. The Pharmacopœia in each case provides tests which exclude most of the impurities which would affect the result of the official assay. The question arises whether in an assay based on conversion of the salts into sulphates the result will be equally guarded by the pharmacopœial purity requirements. It is evident that an impurity which increases the weight of the sulphate vitiates the result of the assay by the sulphate method, while the presence of the same impurities in the carbonate residue of the official assay does not affect the result unless they increase or diminish the alkalinity of the residue. Hence, if the sulphate method is resorted to, the question of the possible presence in the salt of fixed impurities not excluded by pharmacopœial purity requirements must be kept in mind. The impurities most likely to be present in alkali salts for the detection of which pharmacopœial tests are wanting or inadequate are sodium and potassium, and not infrequently magnesium and calcium. These impurities (not likely to be present in any large proportion) will affect the result of an assay either by the carbonate or the sulphate method, the former to a greater degree than the latter. One must bear in mind, however, the fact that where such impurities are present the result reached by the U. S. P. assay does not accurately represent "the amount of salt contained in the sample," as is assumed in the rubric of purity of the respective salts.

FACTORS FOR CONVERTING SULPHATE INTO ORGANIC SALT

| | |
|---------------------------------------------------------------------------------------------------------|-------|
| Lithium Citrate Cryst., $\text{Li}_3\text{C}_6\text{H}_5\text{O}_7 + 4\text{H}_2\text{O}$ | 1.709 |
| Lithium Salicylate, $\text{LiC}_7\text{H}_5\text{O}_3$ | 2.619 |
| Lithium Benzoate, $\text{LiC}_7\text{H}_5\text{O}_2$ | 2.328 |
| Potassium Acetate, $\text{KC}_2\text{H}_3\text{O}_2$ | 1.415 |
| Potassium Benzoate, Cryst., $\text{KC}_7\text{H}_5\text{O}_2 + 3\text{H}_2\text{O}$ | 2.458 |
| Potassium Benzoate, Anhydrous, $\text{KC}_7\text{H}_5\text{O}_2$ | 1.838 |
| Potassium Bitartrate, $\text{KHC}_4\text{H}_4\text{O}_6$ | 2.158 |
| Potassium Citrate, Cryst., $\text{K}_3\text{C}_6\text{H}_5\text{O}_7 + \text{H}_2\text{O}$ | 1.241 |
| Potassium Citrate, Anhydrous, $\text{K}_3\text{C}_6\text{H}_5\text{O}_7$ | 1.172 |
| Potassium Lactate, $\text{KC}_3\text{H}_5\text{O}_3$ | 1.474 |
| Potassium Salicylate, $\text{KC}_7\text{H}_5\text{O}_3$ | 2.022 |
| Potassium and Sodium Tartrate, Cryst., $\text{KNaC}_4\text{H}_4\text{O}_6 + 4\text{H}_2\text{O}$ | 1.619 |
| Potassium and Sodium Tartrate, Anhydrous, $\text{KNaC}_4\text{H}_4\text{O}_6$ | 1.206 |
| Potassium Tartrate, Cryst., $\text{K}_2\text{C}_4\text{H}_4\text{O}_6 + 2\frac{1}{2}\text{H}_2\text{O}$ | 1.350 |
| Potassium Tartrate, Anhydrous, $\text{K}_2\text{C}_4\text{H}_4\text{O}_6$ | 1.298 |
| Sodium Acetate, Cryst., $\text{NaC}_2\text{H}_3\text{O}_2 + 3\text{H}_2\text{O}$ | 1.916 |
| Sodium Acetate, Anhydrous, $\text{NaC}_2\text{H}_3\text{O}_2$ | 1.155 |
| Sodium Benzoate, $\text{NaC}_7\text{H}_5\text{O}_2$ | 2.028 |
| Sodium Bitartrate, $\text{NaHC}_4\text{H}_4\text{O}_6 + \text{H}_2\text{O}$ | 2.676 |
| Sodium Citrate, Cryst., $\text{Na}_3\text{C}_6\text{H}_5\text{O}_7 + 2\text{H}_2\text{O}$ | 1.386 |
| Sodium Citrate, Anhydrous, $\text{Na}_3\text{C}_6\text{H}_5\text{O}_7$ | 1.211 |
| Sodium Lactate, $\text{NaC}_3\text{H}_5\text{O}_3$ | 1.577 |
| Sodium Salicylate, $\text{NaC}_7\text{H}_5\text{O}_3$ | 2.253 |
| Sodium Tartrate, Cryst., $\text{Na}_2\text{C}_4\text{H}_4\text{O}_6 + 2\text{H}_2\text{O}$ | 1.619 |
| Sodium Tartrate, Anhydrous, $\text{Na}_2\text{C}_4\text{H}_4\text{O}_6$ | 1.366 |

BACTERIOLOGY, ITS RELATION TO PHARMACY AND ALLIED SCIENCES.*

BY LOUIS GERSHENFELD.

Bacteriology is an infant of many affiliations, always displaying unusual talents and with the possibility of attaining its maturity in the near future. Forced to await the perfection of instruments of magnification, it remained for the Jesuit Kircher, and the Dutch linen draper, Leeuwenhoek, in 1675, to pave the way for the birth of this science. Though the latter, as well as other pioneers of the seventeenth century, had foreseen the parasitic theory, many authors denied it while others admitted it only as a daring supposition, inasmuch as a positive proof supporting such doctrine was always wanting. Agostino Bassi, a Lodigian physician (born in 1773), may be proclaimed as the true founder of the doctrine of pathogenic microbes. The works published by Bassi in 1835 are sufficient proof to convince anyone that he was a precursor of Pasteur and Koch, as well as the founder of the entire doctrine. His work does not fail to make a profound impression, but this ably formulated doctrine entered but slowly into the domain of science, until 1850, when Dove, together with Rayer, demonstrated a specific pathogenic microbe as the direct agent of a general infective disease (anthrax).

Numerous investigations were begun and due to the excessive enthusiasm in the acceptance of the parasitic doctrine, the insufficiency of the methods of research were frequently supplied with the imagination of the experimenters. Due to this fact, the edifice, so ably raised, quickly crumbled under the blows of the stringent criticisms of different investigators, and everything thus far formed as an aid, together with the doctrine itself, fell into discredit. It is not my intention in this theme to repeat the history of this long conflict (for a complete account is described in Loeffler's work on "The Development of Bacteriological Doctrine").

Bassi's fundamental ideas, more fully developed by Pasteur with his different studies, were not accepted, however, until after the publication of Koch's researches on infective diseases, in 1878. The latter's work was made possible due to the improvement of technique that was made available, after the introduction of the microscope with immersion objectives (invented by Amici and improved by Stephenson), and the discovery of the use of aniline dyes by Weigert in 1875.

Thus, briefly stated, is what took place before science began to satisfy one of its supreme aspirations, *The Knowledge of Causes*, and yet have within its realm one of the greatest of branches that interests both mankind and the universe. Thus brought forth by man's eager and active desire to *know*, bacteriology was soon put into service to help and to save. The problems encountered were touched by botanists, physicians, chemists, pathologists, physiologists, physicists and pharmacists; and their solution soon shed light upon biological principles of the broadest application. Pathology, especially experimental pathology, was re-created and physiology was soon linked with it. New life was given to zoology and botany received additional inspiration. By the methods used in studying the pathogenic bacteria, contagion was made apparent and modern hygiene (personal as well as industrial), public health sanitation and preventive medicine

* Read before Philadelphia Branch, A. Ph. A., May 20, 1918.

thus became established. Who knows if surgery would have ever developed would not bacteriology have supplied its chapter of antiseptics? And apart from the sciences, I doubt if there is a field of human activity that is not already calling upon bacteriology to assist it in its progress. Agricultural pursuits and industries, too numerous to mention here, have and are extending their hands to receive it.

The scope of bacteriology, as one may thus see, is a wide one, with numerous fields and avenues before it, as yet undeveloped. All this time this branch of science has been held under sway by those closely allied members of science that claim to be her *Pater*, though in reality, bacteriology has been produced because of the necessity of the finding of a brother to keep the brotherhood of science intact.

With a definite purpose, the teaching of bacteriology has come in a comparatively brief time to play a very important part in the scientific education of all; and bacteriology is being taught now in most all of the educational institutions. But is the bacteriologist usually thoroughly trained? Has he a broad foundation upon which to erect a sound superstructure? Can a finished product be evolved from a knowledge of bacteriology which has been acquired in the short period of six or eight weeks of a regular college course? and still fit one to handle this vast subject as it is applied to domestic science, agriculture, botany, dairying, water and sewage purification chemistry, pharmacy, medicine, dentistry, veterinary medicine, public hygiene and sanitation, pathology, industrial hygiene, the industries at large, etc. The range of activity and influence of this subject is indeed large and I contend that it is impossible to confine it to the usual curriculum of the medical school only. As a science, bacteriology, though borrowing and giving to other fields of study, possess its own technique and its own methods of investigation and experimentation; and I think the time is close at hand when we will see this field subdivided into its different avenues, as has been found necessary when dealing with chemistry and other sciences. The future of bacteriology is rich in allurements of interest, in promise of results and in a greater possible benefit of mankind.

What would bacteriology be to-day had there been no Pasteur, the chemist? What would bacteriology do to-day without Dakin, the chemist? Yes, and what would bacteriology, as a whole, amount to without its assistance of that closely related science, chemistry? And still it is a known fact that few bacteriologists are not even familiar with the elementary principles of chemistry, which is not only an adjunct but essential to every student in bacteriology, so as to have a correct understanding of what is before him.

This is in addition to the broader and greater problems before us which may be classified under biochemistry and animal or plant physiology, where extensive training in both bacteriology and chemistry is an absolute necessity.

With the realization of what is before her, bacteriology is just beginning to emerge from her peculiar state of disorder and it is time for pharmacy, as a science among other sciences, to quickly realize her own chaotic position and take advantage of what is before her and what bacteriology has to offer. Not since the days of Pasteur (when numerous pharmacists were coöperating with him in his field

of endeavors) was there a more appropriate time for the professionalizing of pharmacy than there is at present during prevailing conditions.

The average graduate from a reputable pharmacy school (especially if the student was a high school graduate) has had a sufficient preliminary training in inorganic, organic, and analytical chemistry, preliminary bacteriology and hygiene, and allied subjects to be able to take advanced post-graduate study (at least one year) in chemistry, bacteriology and advanced pharmacy, to quite readily assume the responsibilities and master the situations that will confront him in a professional pharmacy, where the many-sided problems should be more of a scientific and of a professional character, rather than commercial, if pharmacy is to still keep its roll among the sciences. Students thus trained to deal with medical bacteriology, perform the commonly applied clinical tests and further apply their knowledge in quest of scientific research, will greatly benefit themselves financially, socially and otherwise; and they will raise pharmacy to that high professional standard that it should and I hope will possess.

Let us all remain alert and take advantage of that which bacteriology has to offer us and which pharmacy can well handle. Let us approach it with the right spirit and with this most fertile field for study and investigation let us try to bring pharmacy back to where we all (I am sure) would like to see it and where it rightfully belongs.

DEPARTMENT OF BACTERIOLOGY AND HYGIENE,
PHILADELPHIA COLLEGE OF PHARMACY.

THE USE OF SACCHARIN AS A SUGAR SUBSTITUTE.*

BY SAMUEL T. HENSEL.

The United States Government having restricted the use of sugar employed by the druggist to the extent of 20 percent of his requirements, we are confronted with the problem of meeting this restriction in the most practical way.

Various substitutes for sugar have been recently suggested, some of them absurd, and all of them of doubtful utility.

In my opinion, the very best way to conform to this regulation is to make up the 20 percent reduction in sweetening power entailed by governmental requirement, by the employment of an equivalent amount of saccharin carefully calculated with respect to its sweetening power, and mathematically correct.

Such a method I am prepared to suggest, and herewith present the same in detail.

In view of the present status of saccharin, it would of course be necessary to secure permission from the United States Food Administration, basing our plea for the necessity of its use as a temporary recourse, to be employed for the period of the war only.

I am of the opinion further, that much of the prejudice against saccharin heretofore existing, has been the result of unsupported statements which have been made against the use of that substance.

* Read before Denver Branch, A. Ph. A., May meeting, 1917.

According to the *London Lancet*, there is evidence that saccharin does not appear to produce harm to the human organism, and that since the compilation of that evidence last September, there is still no ground for thinking that it is in any way harmful.

My plan is very simple, entails no additional expense to the druggist, and will solve the problem completely, preserving an important department of our business from disaster and at the same time sustain us in our efforts to serve the public with a pure and wholesome product.

As you all know, 100 pounds of granulated sugar or crystal A, when subjected to percolation, will yield 13.7 gallons of syrup having a density or specific gravity of 1.320 representing 65.5 percent of sugar. Now since $\frac{100}{13.7} = \frac{80}{x}$ we find the value of x to be 10.9 gallons, therefore, $13.7 - 10.9 = 2.8$, the amount of water to be added to the percolate of 80 pounds of sugar.

The employment of the following solution of saccharin will provide the equivalent of the sweetening power of the 20 percent reduction required by the Government:

| | |
|--------------------------|-------------------|
| Take | |
| Saccharin .. | 235 grains |
| Sodium bicarbonate .. | 117 5 grains |
| Alcohol .. | 1 1/2 fluidounces |
| Water sufficient to make | 2 8 gallons |

The above solution¹ when added to 10.9 gallons of concentrated syrup, will make the same volume of syrup as that obtained by the percolation of 100 pounds of sugar, its specific gravity will be less than the former, but its density will be nevertheless sufficient to assure its freedom from fermentation, and consequently its quality as a preservative of many of the delicate fruit flavors.

A syrup of this composition will represent a 1 : 4000 solution or approximately 1/10 of a grain of saccharin in the fluidounce of syrup, an amount so small as to be negligible when compared with the medicinal dose of that substance, which is from one to five grains.

The above combination will represent the sweetening power of 100 pounds of sugar, when saccharin of the highest purity is employed.

When saccharin was first introduced, it had a reputed sweetening power of from 250 to 300 times that of sugar, it was also known that the then commercial quality consisted of from 40 to 60 percent of an inert or nonsweetening substance. Since then, saccharin of the highest purity has been obtained possessing a sweetening power of from 550 to 600 times that of sugar, and it is to this product that I refer.

Before I close, I would like to say that the saccharin used in this way is not intended to replace the food value of the sugar displaced, and that should the

¹ Editor's note—Mr. Hensel makes the statement, "That the density of the syrup will be sufficient to assure its freedom from fermentation." As the addition of the saccharin solution is a simple dilution, it is not necessary to reduce a large volume of syrup for stock until individual experiments have proven satisfactory. In some states the use of saccharin is not permitted in soda fountain syrups, though probably, under present conditions, permission would be granted by the State Food Departments. Since this was written further restrictive orders have been issued.

United States Food Administration at any time in the future deem it advisable to further restrict the supply of sugar, the proposed method will serve as the basis of a sliding scale, which can be readily adjusted from time to time.

Great Britain, according to the *Lancet*, has taken control of the entire output of British saccharin which is to be distributed under supervision of the British Food Administration, having in mind its sweetening power; therefore its availability to displace the sugar employed by the British public in the use of tea and coffee, and with no reference to its food value.

INVERSION OF SUGAR IN U. S. P. SYRUP.*

BY G. W. LLOYD PLETTE.

Observing that certain concentrated sugar solutions developed more or less invert sugar after standing for a time, when at first they contained none of the single sugar or at least a mere trace, the question arose as to the cause of the inversion of the sugar: whether it was due to the action of molds or bacteria, or whether conditions of storing with reference to light and temperature might have been responsible for the change.

Simple Syrup, or the *Syrupus* of the U. S. P. IX, is a 64.7 percent by weight solution of sugar in water. It seems that the best quality of cane sugar—"Crystal A"—is preferred for the manufacture of this syrup.

In the investigation of this question, samples of syrup were made up by both methods mentioned in the U. S. P., *viz*: the "hot" and "cold" methods, and stored under as large a number of different heat and light conditions as possible. The samples were prepared on the 10th of February, this year (1917), and were analyzed for glucose at regular intervals until June the 9th, the volumetric estimation of glucose with Fehling's solution being the method employed. The following results were obtained:

The first sample, made by the cold method and stored in a warm, dark place, showed 45.5 percent glucose after the four months.

The second, made by the cold method and stored in medium light and changeable temperature (almost exact drug store conditions), showed 25.5 percent glucose.

The third, made by the cold method and stored in a cold, dark place, showed only 10.7 percent glucose.

The fourth sample was lost.

The fifth, made by the "hot" method and stored in a cold, dark place, showed only 8.93 percent glucose.

The sixth, made by the hot method and stored in a warm, light place, showed 11.1 percent glucose.

The seventh, made by the hot method and stored in a dark, warm place, showed 16.67 percent glucose.

The eighth, made by the hot method and stored in a cold, light place, showed 15.15 percent glucose.

*Read before Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

The samples were stored in 4-oz. bottles and were shaken daily, in order to prevent a dilution of the top of the liquid, which would serve as a good medium for the growth of any kind of bacterial or mold contamination.

The first observation worth noting is that the syrup, made by either hot or cold method, seemed to be freer of glucose when stored in a cold, dark place.

In spite of the fact that the bottles were shaken daily, all of them developed a fungus growth after a few weeks, and this continued to develop regardless of the high concentration of the syrup. The first bottle gave off a slight alcoholic odor, and the cork "popped" when drawn, suggesting CO₂. The second showed CO₂, but the alcohol was not noticeable. Neither of these were noted in the others, all of which contained a lesser amount of glucose than the first two.

When cultures were made of the different syrups both on agar and gelatin, the latter showed practically no growth, but the agar showed much gas formation and a strong alcoholic odor, signifying the presence of yeast, which was later verified by the microscope. The gas formed under the agar in both aerobic and anaerobic cultures, and was sufficient in each case to raise the agar up in large lumps. The anaerobic culture showed some short, thick rods when stained with methyl violet. These seem to have been a contamination of some kind, as there were very few and there was no fetid odor characteristic of most bacterial growth.

In addition to the yeast cells there was a mold, which proved to be *Penicillium glaucum*. It seems that the mold was almost, if not entirely, responsible for the inversion, as the mold was most abundant in the samples which showed the largest amount of glucose, and these bottles were also the ones which were stored under conditions most favorable to the growth of the fungus, both as to light and temperature.

Therefore it would appear that the best conditions for the storage of syrup are as follows:

The syrup should be stored in full bottles in a cold, dark place, and shaken daily or perhaps twice in a day, in order to preserve the highest degree of concentration and thus keep a thoroughly sterile preparation. There is probably no advantage as far as inversion prevention is concerned in either the hot or cold method of preparing the syrup.

WANTED—THE OLD-FASHIONED PHARMACIST.*

BY J. W. ENGLAND.

Under the caption of "Wanted—The Old-Fashioned Doctor," the following editorial has recently appeared in the Philadelphia *Public Ledger*:

"As the shortage of doctors continues to make itself manifest in civilian life, it is being made clear to the most thoughtless that what the medical schools should turn out in greater numbers and what the country needs is the good, old-fashioned, all-round general practitioner. In many ways the tendency of medical education of recent years toward concentration in the matter of schools and extreme specialization and standardization has not only reduced the number of doctors as a whole, but seriously cut down those who cared for or were trained for general

*Read at meeting of Pennsylvania Pharmaceutical Association, June 1918.

practice. It is now seen that this practice was not altogether the wisest of courses. The highest of standards for admission to medical schools, it may be said, should be maintained in these days of advanced sanitation and advanced methods of preventive medicine; but with these high standards, which have had the effect of cutting down the supply of students, and therefore of doctors, it would seem as if something should have been done before the war to increase the attractiveness of the medical profession, and, what is more, instead of forcing the issue as to specialists, give the general practitioner a dignity and opportunity which for a number of years have been denied him.

"As a consequence, the depletion of the specialists, not only the surgical specialists, by the war, has left the medical profession available in civil life scant in numbers and with altogether too few who are indisputably general practitioners and truly understand the 'art of healing.' For healing is an art, and it depends more largely than many think on individual equation plus the science of medicine as it is obtained in the schools, the hospitals and the daily practice. * * *

As it is, if the war continues, the great need of utilizing the general practitioner for all sorts of service from which he is now cut off by the detailed specialization which rules will be pressed home on every one.

"The medical educators, however, naturally are not blind to the situation and to some of them what is happening will be viewed as a case of 'I told you so.' At all events, as all schools and colleges are looking to their methods with a view of determining their practical relation to the output, it would seem as if the medical schools are in need of some genius who will plan for them a system which will turn out more old-fashioned doctors and leave the necessary specialization to be carried on by relatively small groups of laboratory workers, while the doctors serve the community as a whole and along broad and general lines, applying the hospital and laboratory facts by the bedside, in the home and in the office as occasion calls for."

The shortage of the "good, old-fashioned, all-round general practitioner" is not only quantitative, by reason of fewer medical schools and fewer students, but qualitative, also, by reason of the extreme standardization of the medical sciences and art taught in the schools and the overspecialization of medical practice.

The practice of medicine to-day is in a state of evolution. The older practitioner has a firm faith in the use of drugs for the treatment of disease. The newer practitioner has little faith in drugs and much concerning preventive medicine.

The scientific exactness of the sciences applied in preventive medicine—bacteriology, immunology, hygiene, sanitation, etc., and the brilliant results they have yielded in conserving human life, have appealed powerfully to the imagination of the medical profession, especially when contrasted with the apparent lack of scientific precision in the use of drugs, which lack, by the way, is more apparent than real.

Many of the medical schools unduly emphasize the importance of preventive medicine and minimize the importance of *materia medica* and therapeutics, so that therapeutic nihilism has grown apace and drugs are being used, less and less, by the younger men, at least, in the treatment of disease, although, it is but fair to add that some of the most prominent schools and teachers of the day recognize the value of drugs and are staunch advocates of their use.

The indirect result of this trend, however, has been that there is less and less demand by physicians of pharmacists for professional services; and yet many

physicians condemn pharmacists for the too largely non-professional character of pharmacy. If the practice of pharmacy in the retail drug store of to-day is not as professional as it should be, the fault is chiefly with the medical profession, by reason of its neglect of materia medica and therapeutics, although the pharmaceutical profession itself is by no means blameless.

As usual, in medical history, the pendulum has swung from one extreme to the other. Formerly, drug therapeutics was everything in medical practice and preventive medicine a dream; now preventive medicine is everything and drug therapeutics is nothing, relatively. The truth is, of course, between the two extremes. There is a brilliant future for preventive medicine, but there can be, also, an equally brilliant future for drug therapeutics. It is most desirable, of course, that every step be taken to prevent disease; but when disease is present, the patient does not care then to know how he got it, or how he can avoid getting it again; what he wants to know is what relief he can get *now*. He is not particularly keen about being "an interesting case" *only* to his physician! He wants something done, being of the opinion of Jacobi, that, "Those who die, die 100 per cent."

Some one has said that the medical profession has "run after false gods" and "fallen down on its job," that it does not get as successful clinical results as it did when drugs were more generally used (the death rate of pneumonia, for example, twenty-five years ago was 25 percent; to day it is from 30 to 50 percent), and that in consequence, the confidence of the public in physicians has become so weakened that osteopathy, Christian science, and patent medicines particularly, have obtained their present widespread vogue.

But, whether this is true or not, the fact remains that thousands of years of clinical experience have shown that drugs, rightly used, have real possibilities of usefulness in clinical conditions. It may be that the results gotten cannot always be explained with modern scientific exactitude—the individual drug reaction in the treatment of disease may be too variable to do so—but this does not justify the neglect of materia medica and drug therapeutics shown by many of the medical profession in recent years.

Drugs have positive clinical values, and these should be as accurately determined as possible to the end that the wheat may be separated from the chaff and utilized for the benefit of sick humanity. If empirical therapeutics is anathema from a scientific viewpoint why not develop rational therapeutics, as advocated years ago by Dr. Horatio C. Wood, the ablest therapist American medicine has ever produced?

The old-fashioned doctor with his intimate knowledge of the possibilities and limitations of drugs in the treatment of disease is being superseded by the new-fashioned doctor who thinks chiefly in terms of preventive medicine; and unless the medical profession awakens to the very serious dangers that menace it through its neglect of materia medica and drug therapeutics, with the consequent insufficiency of clinical results and the weakened confidence of the public, the influence and prestige of the medical profession will be seriously imperiled.

The medical profession needs nothing to-day so much as to be born again in a new faith in the rational use of drugs for the treatment of disease, both to

ensure and promote the growth and development of the science and art of medicine and for the better preservation of the health and lives of the people.

And when this is done, then the old-fashioned pharmacy and the old-fashioned pharmacist will again come into their own. God speed the day!

MANUFACTURE OF AMPOULES.*

BY CHARLES L. BARTHEN.

The methods as well as the advantages of administering medicinal remedies, hypodermically, by means of Hypodermic Tablets, Biological Serums, Antitoxins, etc., are well known. But "ampoules" which are hermetically sealed, glass bulbs, containing standardized and sterile, aqueous or oil solutions of drugs or medicinal chemicals, are considered as comparatively new products on the North American market, although they have been in very common use in Europe and South America for a great many years.

With but very few exceptions the content of ampoules are specifically intended for subcutaneous, intramuscular or intravenous injections; therefore possess all the advantages that hypodermic administration affords.

There are, however, three paramount advantages to be gained by the use of ampoules; namely, convenience, accuracy of dose and the ready to use sterile product.

In view of the facts I have just stated, it is reasonable to expect, that the greatest care, accuracy and aseptic conditions should be observed in the manufacture of ampoules, so that even the most exacting physicians will not hesitate to use them.

I shall endeavor to outline in detail the manner in which ampoules are manufactured in the Laboratory where I am employed.

Manufacturing and Filling of Solutions.—Ampoule solutions with very few exceptions do not contain any material other than the actual medicament and the solvent. The solutions must be neutral in reaction or as near neutral as possible, so that when injected they will not cause any irritation, pain or shock. Therefore they are standardized by chemical tests and assays. As a demonstration I will cite a few examples. Sodium Cacodylate solutions must be very faintly alkaline, and free from Cacodyl, the ester of Cacodylic Acid, which is objectionable. Alkaloidal solutions, such as Quinine, Morphine, Atropine, Strychnine, Emetine, etc., must be faintly acid. Solutions of iron salts must be neutral. Solutions of Adrenalin, Pituitrin, Ergot, Strophanthus, and similar products, are submitted to a physiological assay. Mercurial compounds contain some local anesthetic, because there is no other means of preventing them from causing pain, without changing their very nature.

Filtering.—The solutions are filtered first through paper, then through a Berkefeld or Pasteur filter, the latter preferably because it is more dense. The solutions are forced through the filters with compressed air, and the filtrate received in sterilized bottles. Bacteriologists claim that the solution as it leaves the Pasteur filter is sterile.

* Read before Detroit Branch A. Ph. A., April meeting, 1918.

Empty Ampoules.—The empty ampoules are made from thoroughly annealed and alkali-free glass tubing. If the glass were not thoroughly annealed, the ampoules would not only be brittle but would crack and break when heated at the high temperature which is necessary to sterilize them. If the ampoules were not made of alkali-free glass, the excess alkali would cause the precipitation, in time if not immediately, of a great many drugs or chemicals from neutral or faintly acid solutions. This is especially true of the alkaloids and iron compounds. In the case of Adrenalin and Pituitrin, complete decomposition takes place in a very short time if there is the slightest excess of alkali present.

The test which we apply to determine the alkalinity of the glass is as follows: The ampoules are filled with a neutral phenolphthalein solution and sealed, then placed in a steam bath and heated until the solution assumes a pink tint, noting the time it requires for this reaction to take place. Some ampoules will cause the solution to turn pink immediately and others will have no effect on the solution after heating for 24 hours. We do not accept any glass that will not meet a test of three to five hours.

The tubing is thoroughly washed and dried, and the ampoules are made with the stems sealed, thus preventing any dust, etc., from getting inside of them. The empty ampoules are sterilized with dry heat at a temperature of 160° C., for one hour, allowed to cool, and just before filling the sealed end of the stem is cut off.

Filling of Ampoules.—Before a process or method of manufacture of a new product can be perfected a considerable amount of experimenting has to be done. This has certainly been true of ampoules. Without a doubt the greatest difficulty encountered in the manufacture of ampoules, has been to obtain a suitable and efficient method of filling each and every ampoule, with an accurately measured amount of clear and sterile solution. You can take a hypodermic syringe, draw in a definite amount of solution and expel it into an ampoule; this is an accurate but very expensive way, or you may fill ampoules by means of a burette, but the success of this method depends entirely upon the eye and accuracy of the operator. After constantly experimenting for years, we have adopted machines that put exactly the amount of solution we desire into each ampoule; these machines fill from 25 to 35 ampoules a minute. The ampoules are then sealed by means of a blast lamp, the heat of which softens the glass, and the edges of the stems are welded together into a solid mass, making a hermetic seal. After filling there always remains, in the stems, a very small amount of solution, which sometimes causes considerable trouble when the ampoules are sealed, particularly with solutions of Caffeine and Sodium Benzoate, and Sodium Cacodylate. These salts when heated with the glass combine with it, making the tip of the ampoule so brittle that the slightest jar will cause it to crumble or fall off. In the case of Quinine Salts the intense heat causes the Quinine to char, so that when the ampoule is agitated, you will notice small specks of charcoal suspended in the solution.

To obviate the troubles just mentioned we wash down this liquid with a little distilled water.

Sterilizing after Filling. In spite of all the precautionary methods we may adopt in order to maintain aseptic conditions while handling the solutions, apparatus and ampoules, there is a possibility of the solution becoming contaminated

with bacteria. To insure the sterility of the product, the ampoules after filling and sealing, are placed in sheet metal boxes, the top and bottom of which are made of metal screening, and then sterilized by means of steam or hot water, at a temperature the product will permit, for 15 minutes to 1 hour, on each of 3 consecutive days. The temperature is never less than 60° or more than 100° C. You might ask the same question that has so often been submitted to us in the form of a suggestion, as a measure of economy and convenience. "Why don't you sterilize all your ampoules in boiling water for 1 to 3 hours and accomplish the task rapidly, efficiently and economically?" As an answer to this question I will try to explain to you the necessity and what the advantages are of so-called fractional sterilization.

A great many of these delicately adjusted ampoule solutions cannot be subjected to the temperature of boiling water, for the length of time necessary to sterilize them, without partially, if not completely, decomposing the product. Consequently these solutions will no doubt be sterile, but they will have little or no therapeutic value.

The majority of bacteria with which ampoule solutions are liable to be contaminated, can be destroyed at the comparatively low temperature of 60° C. Many of these bacteria are spore-bearing, and while the bacteria can be destroyed at 60° C., the spores are resistant and can only be destroyed at the high temperature of 100° C.

A spore is a minute ovoid body in certain organisms, which gives rise to new organisms by germination. As for example, a solution may be contaminated with spore-bearing bacteria and sterilized at 60° C., on the 1st day the bacteria would be destroyed, but the spores will only be incubated and inside of 12 to 24 hours develop into bacteria; on sterilizing the 2nd day, this newly developed bacteria would be destroyed, and if any spores remained, that were not incubated during the first sterilization, which is very probable, they will be incubated during the second sterilization, and then develop into bacteria, which would be destroyed by sterilizing on the third day. After the ampoules have been sterilized, samples are sent to the Biological Department, where a bacteriologist tests them for sterility. It requires 5 days to complete this test.

To detect imperfect sealing, flaws in the glass, which up to this stage of the process did not appear, and cracks caused by being jostled about in the sterilizing boxes, we submit the ampoules to what we term a Blue Test.

Blue Test.—The blue test is made in the following manner: The metal box, containing the sterilized ampoules, is placed in a vacuum box that is partially filled with water in which is dissolved a small quantity of methylene blue. The cover of the vacuum box is clamped down and suction applied, which draws out the solution from the defective ampoules; then when the vacuum is broken by opening the air vent, the air, as it enters the chamber, forces the methylene blue solution into these defective ampoules.

Washing.—The ampoules are washed by immersing the box containing them first in warm soap suds, then clear water; those containing blue water are picked out and discarded, and the perfect ones are set aside to drain; they are then ready for finishing.

Finishing.—The special shaped ampoules are labeled and cartoned by hand; the others by machine. We have machines that label from 50 to 60 ampoules a minute, and carton them at the rate of 40 to 50 a minute. The ampoules are so packaged that they are always in an upright position, and the stems well protected, so that they will come into the consumers hands in a perfect condition.

In order to maintain aseptic conditions in the department where ampoules are manufactured, it is absolutely essential that everything must be kept scrupulously clean. All cleaning and dusting should be done at night or at a time when manufacturing is not in progress. All employees in the department are clothed in white uniforms, not for the sake of appearance, but to impress upon them the necessity of cleanliness.

LABORATORIES OF PARKE, DAVIS & Co.,
DETROIT, MICHIGAN.

IF THE DRUGGIST'S LANDLORD RAISED HIS RENT WOULD HE BE JUSTIFIED IN ACCUSING THE LANDLORD OF PROFITEERING?*

BY FRANKLIN M. APPLE

In these stirring, troublesome war-times one repeatedly hears of profiteering; also of increases in rent, and frequently the profiteering and rent-raising accusations are directly associated.

The latter cases are the ones we will take up briefly for consideration, and endeavor to ascertain if there is any justice in the charge that an increase in rent, at this time, by a landlord justifies the accusation that he is a profiteer.

In order that we may reach a clear and just decision, it is absolutely necessary that we carefully analyze the question, and "lay upon the table," as it were, the facts in the case as they apply to both parties concerned.

What are the facts involved?

The landlord supplies the property, which represents an investment of his funds, from which he is entitled to a fair net return, as interest earned by said funds.

The druggist supplies the tenant, upon whom the landlord depends, for income from his investment in the property, for, if the property were unoccupied, it would prove to be a source of expense instead of a source of income to the landlord; hence it can be seen that each one is a benefit to the other one.

The question as to profiteering upon the part of the landlord, quite obviously, depends upon the amount of net income he demands from his funds involved.

I will call your attention to the fact that I lay stress upon the question of *net income* enjoyed by the landlord as a reward for the use of his funds, the care needed in overseeing the upkeep of the property and the risks assumed by him.

Let us consider some of the facts in the case that cannot be ignored.

When considering the question of upkeep of a property we are confronted by the cost of materials and the demands made by the artisans and the laborers for their skill and labor, and everyone who has had any experience along this line can vouch for the unprecedented advance in price of these essential factors. When

* Read before the Pennsylvania Pharmaceutical Association, 1918 meeting.

one observes in the daily papers that carpenters are offered seventy-five cents (or more) per hour, with time-and-a-half to double time allowances for time over 8 hours per day, we can judge of the deductions the landlord must make from his gross income (rent the tenant pays) from his property. A few days ago I was informed by a friend, who is a carpenter, that one of his fellow workmen had earned \$91.00 the previous week, having worked considerable overtime at the advanced rate offered for such extra hours of labor.

A recent experience with a plumber, who supplied about 3 feet of 1-inch black iron pipe, an elbow of the same size and one washer, for which a charge of \$1.00 was made, and a charge of \$2.50 per hour for a plumber and helper, shows what allowances must be made for repairs to the plumbing system of a property by a landlord.

What is true of plumbers and carpenters is true of other skilled artisans and unskilled laborers are offered at least 35 c. per hour for their efforts.

The experience of the individual, concerning the increased costs of maintenance of a property, is the case with municipalities, as a result of which the tax rates must be (and have been) increased, which adds another item to the expense account of the property, which must be allowed for in arriving at an equitable rent.

In the past two years the tax rate of Philadelphia has been increased 85 cents per \$100.00 assessed valuation of properties—25 cents in 1917 and 60 cents in 1918—hence it can readily be seen how fortunate the druggist tenant has been who had a lease for a term of years at a designated rent.

The managers of the Insurance Companies have learned that the increase costs of doing business had not made any exceptions to their companies as a result of which increased premiums are demanded for fire and other forms of insurance, which added expense falls upon the shoulders of the landlord to keep company with the other increased expenses he is privileged to enjoy.

If you will carefully inspect your insurance policy, you may be surprised to find among the conditions under which you are granted protection against fire is the following: "This company shall not be liable for loss caused directly or indirectly by invasion, insurrection, riot, civil war or commotion, or military or usurped power, or by order of any civil authority."

You will readily observe that in times of war or insurrection the risk assumed by the owner of a property is materially increased; hence he must protect himself as far as possible by demanding an increased premium on the risk (as is customary in all forms of insurance, the premium being regulated by the risks assumed).

As the Federal authorities are levying rapidly increasing income taxes, where-with to carry on the war for democracy and liberty, into which we have been forced by the insolent, arrogant, brutal, treaty-defying hordes of Middle Europe, this fact must not be overlooked when tabulating the just claims of the landlord.

We have now compiled a list of expenses (all of which have materially increased in recent years) that the landlord cannot escape, and which he must bear in mind when endeavoring to decide upon an equitable and just rent for his property. All of these must be deducted from his income received as rent before he can calculate the rate of interest earned by his money invested.

We now arrive at a point where considerable difference of opinion may arise, but, if we will approach the question with an open mind and in a spirit of fairness, I believe that no serious discord will result.

Inasmuch as the cost of living has materially increased, and investments in all sorts of commercial enterprises are netting greater income to the investors, is the landlord entitled to a greater return upon his investment than he previously enjoyed? Quite likely it will depend somewhat upon the question as to "which side of the fence you are on" in this case, as the renter certainly does not relish an increase in expenses in the form of rent.

To those who entertain the idea that an increase in rent at this time indicates profiteering, I will direct their attention to the fact that the investor must protect his principal involved by guaranteeing a net income that will prove as attractive in proportion to other forms of interest as the past incomes have proven to be; otherwise he stands a good chance of losing a portion of his capital, through the diminished market value of his property. This certainly necessitates a greater percentage of net income than in the past.

Our Federal authorities are compelled to offer higher rates of interest upon the best securities in the world, in order to attract investors, and as all forms of investment are based upon the standard set by the Bonds of the U. S., it is axiomatic that other forms of securities, including real estate, must show higher rates of income than in the past, in order to safeguard the market value of the investments.

If such action is not taken by the landlord he will unquestionably be forced to sustain a loss when he disposes of his property—by desire or through necessity—as the net income of real estate determines its market value.

Many instances could be cited where the market value of properties were materially reduced through the reductions in rent that were necessitated by various influences beyond the control of the owners thereof.

Mistaken ideas of the carrying charges of properties are obtained by the public through the misleading displays made by some builders in their efforts to show how great an amount of rent can be saved by purchasing one of their houses, thereby making the landlord class of investors appear to be hard-hearted, usurious persons. This practice should be controlled by legislation as many innocent parties come to grief when they experience the true costs of maintaining their properties.

As far as the druggist tenant is concerned, he has no capital invested in the property and assumes no risk except the amount agreed upon in the terms of the lease to be paid to the landlord, and if he is an untried quality, the landlord must take a risk upon his integrity, his business qualifications and his application to business; hence it is apparent that the element of chance is decidedly in favor of the tenant.

I am not unmindful of the fact that the landlord, as owner of a specific property, has the final decision as to the use to which it shall be put—except those businesses that depend upon a license from the courts, and those possibly restricted in the deed for the property; but he has his hands tied when he signs a lease for a term of years, just as the tenant is obligated to pay the rent for a like period of time— if he remains solvent.

When basic conditions of any country become so radically disturbed as they have become in our land, it is logical to expect the relations between the landlord and tenant will be more or less altered from the old standard and the greater uncertainties that all of us must look forward to in all walks in life, including retail druggists, necessitates greater elasticity in the terms of leases written and signed in the future.

If a landlord demand increased rent for his property from a druggist, his tenant, he should be willing to present a display to the tenant, upon demand, showing the increased costs of maintenance of his property, and the tenant should be willing to concede a higher rate net income to the landlord, for reasons previously stated.

If a lease is demanded for a period of years, to protect his business, the druggist should be willing to assume the payment of all increases in taxes, and extra upkeep costs of all sorts and descriptions, thereby guaranteeing a measure of protection to the landlord that his income from his property will net him about a certain percent upon the money invested—or more justly upon its market value—which amount he could invest in some other forms of security of equal stability.

As the landlord presents security to the lessee in the form of tangible assets, it would not be unreasonable upon his part to demand security in some form for the faithful performance of the contract upon the part of his tenant, and I look for greater demands along this line in the future than has been the custom in the past, as the uncertainties that will exist in business circles after the termination of this frightful war with its unprecedented and unknown amount of expenses, will add materially to the hazards of engaging in business—and the drug business will be no exception to the general rule.

Under such a state of affairs the landlord will be compelled to assume greater risks of failure by his tenant; hence he must demand a larger income from his investments.

Having presented for your consideration a number of facts that directly apply to the question of the relationship of landlord to tenant, and reversely, I will leave it to your sense of justice to decide if the landlord who has raised the rent of his druggist tenant can be honestly accused of profiteering.

If the increase of rent has been a moderate one (whether accompanied by an explanation as to the cause for the additional amount of rent demanded or not), I should not feel justified in entertaining any such thoughts. If the extra amount demanded is as great as 50 percent or more, I should expect a satisfactory explanation from the landlord as to the necessity for such action upon his part, and if it were not forthcoming I should be forced to believe that his silence indicated his inability to prove himself innocent of profiteering.

It is to be understood that these conclusions have been based upon economic conditions as they exist at present, and any serious alteration of basic conditions would demand a new investigation and more calculations, with probably a different decision.

It is a serious matter to accuse one's fellowman of profiteering in these days of stress and trial, for it is a more or less arraignment of their patriotism and humanitarianism; hence let us not judge harshly or unjustly.

THE APOTHECARY, A LITERARY STUDY.*

BY EDWARD KREMERS.

10. THE TWO SONS OF A DANISH APOTHECARY.

Opposite the harbor of Kiel, the naval base of Germany, and between two larger Danish islands, there lies the long but narrow Langeland. It is but 4 to 8 Km. wide and 50 Km. long, hence its name; its area is but 275 square Km. According to recent statistics, it has a population of only 19,541 inhabitants. The only city in the island is Rudkjoebing,¹ which at the same time boasted of 3,447 inhabitants, and a harbor which about 150 vessels regarded as their home port. Yet this insignificant place gave to Denmark one of her greatest statesmen of the nineteenth century, and to the world one of her famous scientists. What is more, these two men were brothers who first saw the light of day in the home of an apothecary. The love of truth as expressed in nature and nature's laws was instilled into their minds by their father, the love for all that is true and noble having previously been implanted in their young hearts by their mother. Such at least is the story told by Hans Christian Andersen in his tale of the "Two Brothers."



HANS CHRISTIAN ANDERSEN.
From Lithograph in "Illustration" by Emil Bachmann.

Hans Christian, the older of the two brothers, was born August 14, 1777, in Rudkjoebing. At the age of eleven he was set to work by his father in the apothecary shop,² where "he developed a taste for the natural sciences." Apparently, to make up for the instructional deficiency in so small a place, he was sent away from home when eighteen years of age to receive instruction in the classics. For proficiency in these studies he received academic honors in 1796. In 1798 he received the medical prize of the University of Copenhagen, and in 1799 he was

* For the illustrations the writer is indebted to Apothecary Hoem, of Copenhagen, and to Apothecary Bajer, of Rudkjoebing. The cuts for illustrating this article were kindly loaned the JOURNAL OF THE A. P. H. A. by the *Danish Apothecary's Apotheker-Zeitung*.

awarded the doctor's degree in philosophy. Thus, while his father set him to work in his apothecary shop at an early age, this apprenticeship was not allowed to interfere with a liberal education in the classics and an equally broad introduction into the study of the natural sciences. One has but to look over the list of his publications³ to see that he never allowed his specialty to dwarf him intellectually.

In 1800 he acted as manager of the Manthé apothecary shop in Copenhagen, and at the same time delivered his first lectures in chemistry before the Academy of Surgery. After this he made his first trip to the continent, where he remained several years visiting the greater part of Germany, also France and Holland. He returned to Denmark in 1804. Somewhat later he was appointed to the professorship in physics at the University of Copenhagen. In 1824 he founded the Danish Society for the Advancement of Science. In 1829 he was made Director of the Polytechnic School in Copenhagen. In 1840 and 1850 he received government recognition by being appointed conference councillor and privy conference councillor, respectively. He died March 9, 1851.



ANDERS SANDOE OERSTED.
(From Lithographic Institute on Em Baerentzen.)

His world fame, Oersted owes to his discovery, in 1820, of the deviation of the magnetic needle by the electric current, thereby establishing the laws of electromagnetism.⁴ However, not a few of his earlier writings are of a chemical nature, and one of them in particular, *viz.*, his *Om et nyt Aesk i Peberen*, the discovery of piperine in pepper, only a few years after the German Apothecary Ser-tuener had discovered the alkaline properties of morphine, reflects his earlier pharmaceutical training.

The younger brother, Anders Sandoe, was born December 21, 1778, became a jurist and later statesman. In the latter capacity he advanced from one position to another until, in 1853, he was appointed prime minister by the King of Denmark. He died May 1, 1860.

However, to return to the apothecary shop, which is the scene of Andersen's story. According to the fifth edition of "*Den Farmaceutiske Stat i Danmark*, 1915,"⁵ published by the Danish Pharmaceutical Society in 1917, the "Rudkjoebing Apotek" was established Nov. 2, 1705, by Christopher Gottfried Becker. In 1741 it passed into the hands of Anders Joergensen and in 1773 into those of H. Vennenghausen. On June 5, 1776, hence only a month before the declaration of independence of the American colonies from England, it was purchased by Soeren Christian Oersted for 600 Rbdl.⁶ Inasmuch as neither of his sons followed in the footsteps of their father, the apothecary shop did not remain in the family, but passed into the hands of one Anthon Jacobaeus, March 10, 1806. After that it changed hands several times and since 1889 its proprietor is Christian August Pilegaard Bauer.



Statue, Hans Oersted, in Oersted Park, Copenhagen,
unveiled September 25, 1876.

But now, as to Hans Christian Andersen's story of the two brothers. It will be seen that the Christian names of the Danish story teller are those of the elder of the two brothers, the world-famous scientist who emanated from the modest apothecary shop in Rudkjoebing. The German translation is one of the

seventeen selected by O. B. Super in his *Adersen's Maerchen* of the Heath Modern Language Series. However, the exceedingly meagre comments in the "Notes" contain nothing whatever pertaining to pharmacy. The English translation here reproduced is taken from the 1870 edition of "Stories and Tales" by Hans Christian Andersen, of Houghton, Mifflin Company, who kindly gave permission to use their text for this purpose.

"On one of the Danish islands, where ancient judgment seats loom up mid the cornfields, and mighty trees lift their heads in the beech forests, lies a little town, with red roofs over the low houses. In one of these curious matters were being prepared over the coals and embers on the hearth: there was testing in crucibles; there was triturating and distilling; there was pounding of drugs in mortars; an old man stood over the whole.

"'One must rightly combine the right matters,' said he 'yea, the right, the fitness, the truth in each created thing, we are to recognize and hold.'



OERSTED'S APOTHECARY SHOP.

The following words are on the plate under the clock "*Tiden-er-kort Brug-den-vel:*" Time is short—utilize it well

"In the chamber, by the good good-woman of the house, sat two sons of hers—yet young, but with grown thoughts. Of right and reason had the mother ever counseled them, and to hold fast to truth, which is the face of God made visible on earth.

"The elder of the boys seemed arch and pert; his delight was, to read of nature's

laws, of suns and stars—no tale could give him better joy. O, what bliss, to go on journeys of discovery, or to contrive to imitate birds' wings, and fly!—yea, that were the true thing to find! Father was right, and so was mother; 'tis truth doth hold the world in shape.

"The younger brother was of a quieter mind, and lived but in his books; did he read of Jacob—how he clad himself in sheepskins to resemble Esau and therewith to wrong him of his right of birth—in anger the boy clinched his little hand, vexed at the fraud; did he read of tyrants, and the wrong and misrule that reign in the earth—tears filled his eyes. Thought of the right and of truth, that ought and were to triumph, swayed him mightily. One night the little one had gone to bed; but the curtains hung awry, and let in some light upon him, by which he lay with book in hand, and read to end the history of Solon.

"And thought did lift and bear him strangely on, 'twas as if the couch had grown into a vessel under sail—was he dreaming? or what meant it else? He glided over rolling billows—coursing swift athwart the sea of ages; his ear caught Solon's voice, proclaiming, in the stranger's tongue—and yet the boy did understand the Danish motto: 'Justice buildeth up a land.'

"And the Genius of Humanity stood in the midst of the lowly chamber, bowed over the boy, and left a kiss upon his brow: 'Be strong in glory, and strong in the battle's heat; with truth fixed in thy breast, go forth on thy way unto the home of truth!'

"The elder brother was not yet abed; he stood at the window, gazing out upon the mists that arose from the plain; they were not elves, a-dancing over yonder; the old nurse, 'tis true, had taught him so; but he knew better; they were vapors, warmer than the air, and hence they arose. A shooting-star lit up the sky, and the boy's thoughts were instantly gathered up from the mists of earth, into the region of the shining meteor. The stars twinkled in the firmament, and it was as if golden threads were floating from them to the earth.

"'Come with me!' it sang and rang in the boy's heart, and the Race's mighty Genius bore him swifter far than bird or arrow, or aught of earth that flies—out into Space, where ray on ray from star to star bound all the rolling globes to one another; the earth was spinning in the rare empyrean city crowding close on city. Through the spheres resounded—

"'What is space, and where is distance, while the lofty spirits of Thought bears thee on high?'

"And again the youth was at the window, peering forth, and the younger brother lay abed, and their mother called them by their names:

"Andrew and Hans Christian!"

Denmark knoweth them, the world knows both the brothers.—"Oersted."

BIBLIOGRAPHY.

1. Kjøebing, is a place where merchants (Ger. *Kaufmann*) assemble, hence a market.
2. A copy of Forchhammer's biography of Oersted (G. Forchhammer, *Hans Christian Oersted*, Kjøbenhavn, 1852) is in possession of Yale University Library, which kindly loaned its copy to the University of Wisconsin Library for use at Madison.
3. Such a list of Oersted's publications may be found in Forchhammer's biography already referred to.

(4) As Oersted states in a Latin brochure, a German translation of which appeared in *Gilbert's Annalen*, vol. 66 (1826), p. 295, this observation was first made in connection with one of his lecture experiments, and later repeated in the presence of personal friends. Inasmuch as he regarded the observation of fundamental importance, he mentions the names of those who saw the experiment as witnesses. The importance of the observation and the consequences derived therefrom, are dwelt upon by Rosenberger in his *Geschichte der Physik*, 3rd part, p. 173.

(5) For copy of this work, the University Library is indebted to the generosity of Mr. Otto J. S. Boberg, of Eau Claire, Wisconsin, who received his pharmaceutical education in Danish apothecary shops and at the University of Copenhagen.

(6) Rbdll. = *Rigsbankdaler*, i. e., the dollar of the imperial bank, the equivalent of one-half dollar, U. S. coin.

DRUG STORE RECOLLECTIONS.*

BY J. N. HURTY, M.D.

Col. Eli Lilly beguiled me into the drug business. I was a callow youth of 16 years and 9 months, and was to graduate in high school the spring of 1870. It was April—Col. Lilly lived in a humble frame dwelling opposite the school house. He was raking his yard that bright spring morning, and I, a callow, conceited and centered youth, with strap-bound books, was trudging unwillingly to school. "Hey, John," said the Colonel, and I stopped. "Come in here, won't you, I want to speak to you." I went in and he unfolded his story which shaped my life work. Up to that time it had never entered my mind to become a druggist. The Colonel made a "center shot." All that day and the next, and the next, and for two weary weeks until school ended, I thought, I dreamed, I contemplated upon becoming a druggist. My expectations were keen, my enthusiasm was at a white heat. I walked by the Red Front Drug Store (that was the name of the Colonel's emporium of drugs and simples) at least twenty times a day. My salary was to be three dollars a week and what could I not do with such a princely income? Priorly I had earned one fifty per week selling and carrying papers, and here was a jump of one hundred percent. It isn't every boy I said to myself who early in his life's career has his salary doubled. The morning of the first day I awoke at four and it seemed an interminable time until 6.30 A.M., when I was to meet the Colonel at the big double doors of the Red Front. I was there twenty minutes before time, having eaten scarcely any breakfast.

The Colonel appeared a little behind time, which surprised me greatly. He inserted his big iron key, which I remember was about eight inches long and weighed at least three ounces. The door opened and supposedly my life work was before me.

"Sprinkle the floor and sweep out," were the orders, and willingly I went at it. I had for a year sprinkled and swept the floor of the news stand by the post-office and so the work was done acceptably. The show cases, the counters and the base board of the shelves were then dusted with a feather duster and the store was ready for business. "Fix the lamps," was the next command. Eight coal oil lamps suspended from three two-armed fancy iron chandeliers lighted the room. I started to take down the lamps two at a time to show my efficiency.

* Read before Historical Section, A. Ph. A., Indianapolis meeting, 1917.

But, alas, I fell off the shaky step-ladder, broke both of the vitreous dispensers of light, skinned my shins and made an awful muss of broken glass, wicks and coal oil upon the recently swept floor. Of course, the Colonel was startled and he exclaimed—"My God, what a stupid ass you are." But seeing my plight and the sorry look in my face, he relented and broke into a paroxysm of laughter. My life was saved. Now that he had laughed I knew that my execution was not near.

In about two weeks I had another accident which I might just as well tell right here. The cellar was entered by a flat door in the floor lifted by a ring. Just above this door on a wide shelf was a row of one-gallon glass-stoppered bottles which held stock such as paregoric, laudanum and Huxhams Tincture. One of the bottles contained a gallon of freshly made bay rum, which the Colonel had given a slight yellow color with tumeric. It was this bottle which came very nearly undoing me, and it happened in this way: I was ordered to the cellar, to bring up a bundle of handles for white-wash brushes. They were about two feet longer than ordinary broomsticks. I was told to be careful, and I resolved to be, but alas and alack, man proposes and God disposes. On the stairs I slipped and the end of the bundle fell with heavy impact upon the bay rum bottle and shattered it into a million pieces. The bay rum poured forth upon my head and down my neck, saturating me with its fragrance. It was a veritable deluge of bay rum. The Colonel did frown "sure nuff" this time. His face plainly said, "this brat is impossible." I had nothing to say and could only look at the Colonel, and he looked at me. There I stood, dripping with fluid and the fragrance of bay rum filled the room. A customer appeared and viewed the wreck, and again the ridiculousness of the situation became ascendant, and we all broke forth in laughter. My laughter was somewhat forced. But I was saved.

Concerning bay rum. Its drug store days are not what they were. The barbers were our best customers, and in these degenerate days the barber-supply houses are the sources for this delectable cosmetic and also for lavender water, pomade and cologne.

CONDITION POWDERS.

Condition powders sold splendidly fifty years ago. We made our own and the "Red Front Lilly Condition Powders" had a reputation which was not bounded by county lines. I have made barrels and barrels of these condition powders and packed thousands of cartons. We bought copperas, alum, rosin, epsom salt, sulphur and bicarbonate of soda in five-barrel lots. Foennugreek was, of course, an ingredient of our superlative mixture. The copperas, alum and rosin had to be powdered and, the cub powdered them. And now, say—did you ever powder a barrel of dried copperas, a barrel of dried alum, and a barrel of rosin in a fifty-pound iron mortar and sift these through a fine sieve? It certainly is some job. The iron pestle had a hickory extension handle attached to a heavy cord which passed through a pulley overhead and was counterbalanced with a small sack partly filled with stones. Oh! the dust! It filled my hair, my eyes my nose, my mouth. It even seemed to penetrate my mind and soul. For weeks after I had made a five-barrel batch of our unexcelled, unequaled and superlative condition powders, I actually oozed sulphur, copperas and foennugreek from every pore. For hogs the powders were modified by adding one-half pound of powdered arsenic to each fifty pounds. As for testimonials, we had them by the

thousands. Every user of our powders insisted there was nothing like them either in the heavens above, the earth beneath, or the waters under the earth, and not one of the ginks was in the least degree competent to testify. Yet their testimonials were a go. All I can now say for them is—as far as I know, none of the poor beasts who were made to eat the powders in their food died because of the foolish medicine.

BAKING POWDER.

Baking powder was another great seller at the Red Front Drug Store. Making it was a clean but dusty job. When a batch was finished and safely placed in its paper-lined barrel, I was white as a miller, and again mouth, nose, ears, eyes and hair were fully, completely and absolutely filled and saturated. Indeed, after mixing a barrel of Lilly's par-excellence baking powder, my soul, mind and body were not made lighter, but heavier.

DOVERS POWDER.

Has any one here under fifty ever made Dovers Powder? I doubt it. Did you ever know its ingredients? Well, I have made it, and I made it too by Colonel Lilly's method. First, the potassium sulphate and the powdered opium were stirred in a mortar for one-half hour, scraping down with a broad limber spatula. Then the powdered ipecac was added a little at a time with grinding and scraping ad infinitum. Finally, the compound was placed on a large sheet of paper and again mixed and mixed with a spatula. All of this mixing and rubbing was not entirely to effect the thorough admixture of ingredients, but also, "by human contact and motion to impart certain obscure qualities not otherwise to be secured."

PATENT MEDICINES.

Patent medicines simply were on the rampage in my early drug store days. And yet—to-day, we find school teachers and preachers who have not risen out of the patent medicine stage of ignorance. Fifty years ago Helmbold, Jayne and other patent medicine kings wallowed in wealth. They simply dripped with gold. I remember reading an account of Helmbold's great glorious golden glory at Long Branch. Solomon, Croesus, nor any of the ancient gold bugs could touch him. He had 'em all beat a hundred miles. And to think Helmbold's great fortune was produced from nothing. Absolutely nothing. No, I am wrong, it was based upon the stupidity, ignorance, superstition and irrational credulity of mankind. And all these we shall never lack.

The funniest patent medicine stunt that was ever pulled off was "Walker's California Vinegar Bitters." Our little country drug store purchased these bitters in fifty-case lots. Thousand sung their praise. The testimonials, positively asserting the life-giving and curative powers of Vinegar Bitters, came from farmers, robbers, doctors, merchants, chiefs, and not one grain of the entire testimony was worth a darn. Walker's California Vinegar Bitters was, we were told, simply aloes soaked in weak vinegar and literally wrecked the intestines into which they were introduced. Then there were bitters and bitters and other bitters.

Joseph R. Perry, the genial one-time editor of the *Indiana Pharmacist*, tried a bitters trick which won and which brilliantly reflected the credulity of people. He had in his stock odd bottles of several kinds of bitters with wrappers spoiled

and worn and unsalable. He bulked the bitters in a keg, added some whiskey, and rebottled with a flaring red label, announcing— "*The Most Wonderful and Powerful Stomachic Bitters.*" *A New and Great Discovery. Life Giving, Life Saving, Strength Making.* Upon the label were two pictures, one of a miserable individual and the other of a strong, ruddy person, showing before and after taking.

The wonderful medicine sold readily. The first supply was soon gone and the demand had only begun. Then Joe bethought himself and pondered as to whether or not the joke should be continued. Joe was honest, and, of course, therefore impractical. He just couldn't keep up the swindle and he didn't, and frankly told his customers and they voted him a fool and unworthy of patronage. But what are you to expect of a world in which millions of people will defend divine right to rule and allow themselves to be plunged into a whirlpool of human blood simply to exalt a paranoic with a withered arm, a running ear, and a cancerous throat.

ASAFETIDA.

Did you ever see a one-hundred pound box of asafetida in a little country drug store? What do you suppose could be done with it? Well, the Lilly Red Front Drug Store, actually bought the malodorous drug in one hundred pound lots, and we powdered much of the vile stuff in a big iron mortar.

In those days every child was a stinker because of a little bag of asafetida suspended over its chest. It was a rank stupidity, crass ignorance and silly, but it was done by Christian people. Several times in my early drug store experience I grew faint-hearted and seriously thought of engaging in some life work that had fewer irritating, disgusting, tiring and repugnant features. Especially strong was this thought when I was called upon to powder dried asafetida in an iron mortar. That job was the limit. But evidently I was weak; anyhow, not strong enough to quit a business which dealt in asafetida.

PLASTERS PILLS LOZENGES.

I wonder if there are any pharmacy kids here present who ever spread split-skin plasters, made compound cathartic pills by the quart and cut ten-pound lots of tamarind, fig and senna lozenges, or made pecks of cough troches? As I remember my sensations I felt like jumping and shouting when I had finished a batch of compound cathartic pills which filled a drawer holding at least a peck. My first batch of tamarind, fig and senna lozenges brought upon me a mighty catharsis for despite warning I persistently nipped off pieces of the mass to satisfy the gustatory pleasure hidden therein.

I watched Colonel Lilly spread a plaster with a curiosity which developed into great admiration. First, the white split skin was carefully squared, then tacked to a pine board and strips of calendered paper pasted around the edges. How is this to come out? I almost thought aloud. Then the Colonel carefully spread the melted plaster mass with a spatula, finishing the surface to perfect smoothness. Then came the dusting with tartar emetic, and lastly the paper strips (the paste not yet dry) were skimmed away and there was the finished plaster, an example of the master's skill and art. I was a proud pharmaceutic kid when I finally could turn off a pitch plaster which would pass inspection. The plaster

was dispensed in a big envelope made by ourselves out of stiff manila paper. I am quite sure large paper envelopes were not purchasable on the market in those days.

SODA WATER.

Yes, we had a Tiffits Fountain, and after I had learned how to make syrups and charge fountains I voted it a nuisance. On circus days and at county fair time, people stood in line to drink our soda water, which had the reputation of being the best in town. The washing of the glasses and the slop made at the fountain led to a washing scheme which was conceived by the Colonel and which was not a success. Two hundred glasses, the thick kind, were purchased, the idea being to wash the glasses at a special sink in the rear of the store and bring them forward in trays clean and shining. The plan worked well in a rush with about three boys to keep the glass supply from failing and provided they kept out of the way of the dispenser. But if business lulled the glass washers had little to do and became "stand arrounds" on expense. Only on big days did we work this plan, and on account of its complications the confusion of running to and from behind the counters, it was abandoned.

In 1873 I attended the Philadelphia College of Pharmacy, and when I returned the Colonel one day remarked—"Well, I suppose you know it all now?" The question was kindly put, for the Colonel's great heart would not brook unkindness. "No," I said, "I don't know it all, but I know more than I would have known under your teaching." "Good, Good," he shouted. "You'll come through." But it was Mike O'Hare who said the right thing. "Where have you been so long, Johnny?" asked "old Mike." "Been away to pharmacy college," I replied. "That's right," said he, "make a farmer of yourself."

THE STATE LEGISLATURE.*

BY W. H. COUSINS.

Caesar had his Brutus, Job his boils and Caranza his Pancho Villa, yet none of these much-touted martyrs ever hovered 'round the corridors of a State House and sought to get the attention of the Honorable Jason Jawsmith, chairman of the Committee on Public Health. The trivial demands of the craft of Pharmacy are nothing compared with the howling needs of the populace. Nine-foot bed sheets, the lengthening of women's dresses at both ends and the tax on cigarettes are the average State solon's idea of saving the country and keeping it from going to the dogs the shortest route.

The State Legislature is the most brutal joke of the age, made up, as it is, mainly of an aggregation of unconscious comedians, who, in their serious contemplation of themselves, put Don Quixote to shame. When Heck Rogers of the Cactus and Greasewood "Deestriet" strokes his whiskers, he imagines the seismograph is having a convulsion in Greenwich Observatory, and when approached

* Read before Joint Meeting: Section on Education and Legislation and Pharmaceutical Legislation, A. Ph. A., American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy, Indianapolis meeting, 1917.

on the subject of Pharmacy puts on a pouter-pigeon aspect, leaving the impression on the poor human caterpillar who dared approach him that he can not be bothered with small things. I have been handed everything from a lemon to a block of ice big enough to cool Lake Michigan while trying to get an opportunity to tell the powers that were, that I believed the man who practiced Pharmacy in a wagon should be under the same requirements as the man who practiced Pharmacy in a drug store. It seems that the pharmacist of this country is a kind of legislative step-child, who asks for bread and is given a stone. He pleads for a fish and gets a snake. I call to mind at this time the hard work of a legislative committee in a southern State last year. This committee sought to regulate the itinerant vender of medicines, they made a long, hard fight, they gave up much time and money in the effort, and after it was all over and the smoke of battle had cleared away, instead of placing the vender under the same restrictions that pharmacists are under, the Legislature reduced his tax 50 percent.

A State Legislature is a collection of human curios and would furnish many tips for comic opera if the composers of this mental diet for the tired business man but knew it. We believe that the legislators will eventually fix it so that the pharmacists will have to employ legal counsel by the year in order to avoid breaking some of the idiotic, Welsh rarebit dreams that they have written into the statute book. They seem to view us in much the same light as a rustler is looked upon in the cattle country. We get more attention in the form of prohibitive laws than the burglar and the confidence man; when revenue is needed they add a few links to the endless chain that now reaches nearly to the bottom of the druggist's boots. However, in the State Legislature we are getting what we pay for. You can buy whiskers, bald heads and huge equators for little money, but when you go into the market to buy brains, you will have to come loose from some coin. The average State legislator's remuneration is not as much as is paid a union bricklayer, and a plumber wouldn't sleep on the job for what is paid a solon who assumes half the responsibility for the behavior of Atlas.

A State Legislature has more views regarding the best way to save the country than a frightened cayote has notions. Colonel Songbottle, of the Rocky Creek District, is threatened with passing a bill to rescue working girls from work, and is ready to pour out eloquence, enthusiasm, blood and various and sundry flagons of "40-rod" in order that this admirable draft may become a law on our statute books. Another comes to the forum with a heart full of sympathy for the comfort and well-being of Jersey cows, and is ready to wade in blood to his eyebrows in order to put his antitick measure under the Governor's nose for his signature. There is the chap with a deep-seated hunch that every community should have its mosquito inspector and a 'steen million dollar appropriation for research work in the investigation of the diseases of humming birds. At about this juncture, Percy Pinchback screws the single barrel spectacle a little deeper into his starboard lamp and moves immediate consideration of the bone-dry bill. Percy having just regaled himself with a cup of warm tea and an order of lady fingers, feels fit as a fiddle and hard as nails, and is panting for a roughhouse with the wet element. Percy bears a strong facial resemblance to a hatchet and his idea of being real downright mean and doing something bloody blooming rough,

"donchar knaw" is to eat breakfast food for dinner. Nevertheless, in this instance he has started something that it will take fourteen weeks to stop.

Any time the bone-dry bill is mentioned, above a cathedral whisper, legitimate interests are relegated to the twilight sleep, while the wets leak tepid atmosphere, anent personal liberty, and the dries sing "Where Is My Wandering Boy Tonight." All this has such a salubrious effect on the chairman of your legislative committee. One day he stands with his foot on the brass rail and his pulley-bone on the mahogany until he is pie-eyed, and has his system fastened to a real raz-mataz Jack London jag that screams for aspirin and hollers for spirit of ammonia, appealing to the wets to support the Pharmacy Bill. They fall on his neck and say in loud, vociferous voices, "Thas all right, bo, are we with you? I should shay sho." The next day he makes a drag to get the dries to support the Pharmacy Bill. He has to drink water, discourse learnedly on the effect of alcohol on posterity, discuss elaborately and at great length the final perseverance of the saints and he delivers an oral thesis on the church *versus* the stage. The brethren are unanimously in favor of supporting the Pharmacy Bill. The chairman is much pleased, in fact he is tickled almost into convulsions, especially if he be a new man at the game. He wends his way slowly to his hotel, where he locks the door, hangs his pajamas over the transom, pulls down the blinds, disconnects the telephone in order to light a cigarette without getting caught in the act as he meditates, peering through the curls of tobacco smoke, he seems himself, down by the sea, like Alexander the Great, filling a large bandana full of briny tears because unconquered worlds are not to be had any more. He readily discerns why the fool killer passes up State capitols. It's because he doesn't want to wilfully neglect the rest of the world, and of the two jobs he chooses the lesser. Our chairman even laughs out through the armholes of his vest when he thinks of how he has put something over the State Legislature that has been hanging fire for all of these years, he views himself as a smooth manipulator of men, delivering wets and dries, tied in bundles and laid in rows. He doesn't know that a kiss of good-bye and a "God bless you" doesn't mean that the Pharmacy Bill is passed any more than it means that asafetida has lost its odor. Our hero is not allowed to gloat long over his brilliant achievement. He is called to the committee room on a bright, sunny morning, to witness the demise of the Pharmacy Bill. It is chloroformed for legislative operation, and dies on the table. As he journeys homeward he feels just like the chairman felt last session, the session before, and all other sessions at which a Pharmacy Bill was sponsored.

Infant mortality among the Pharmacy Bills in my extensive legislative practice has been nearly 100 percent. Like a Roman mother, I have stood first at the cradle and last at the grave. I have seen them born, full of hope and health. I have seen them wither and die, with a dull thud, like a campaign pledge hitting the tidal wave of prosperity, while a weak, sickly measure for the protection of stingless mosquitos grew and thrived under the blessed sunlight of committee room sanction. Semi-annually, for many years, I have stood by and wept silently as one of these legislative babies christened "Pharmacy Bill" passed to the scrap heap of broken hopes. Bill always looks the part; he has the makings of a statute, but his young life is of but a few days and full of trouble, he is strangled to death of hot air in that fatal nursery, the committee room. Your chairman may be

able to unbutton the time lock at any hour in the 24, he may know how to jimmy the latest model vault and scale the tallest porch on the boulevard, but if he ever breaks into the committee room and gets the Pharmacy Bill out, he will have established a precedent and should be pensioned for life.

There's another feature of the legislative chairman's dealings with the State Legislature that is just as pleasant to him as a bone felon on his trigger finger, and that is to have a druggist howl himself hoarse because the legislative committee didn't accomplish anything. This druggist went right on making suppositories in a very tranquil and unconcerned way while the legislative committee was sitting up nights, sweating blood and legging him to help. He shows his gratitude like a foot-pad who beats his victim unmercifully because he didn't have more money. Probably so many sins would not be laid at the door of the State Legislature if the pharmacists of this country would help the legislative committee. Owing to the presence of ladies, I am unable to express fully my views of certain State Legislatures.

CHEMICAL WARFARE SERVICE TO CONTROL GAS OPERATIONS.

The following statement is authorized by the Secretary of War:

The organization of the Chemical Warfare Service has been completed. Henceforth all phases of gas warfare will be under the control of the Chemical Warfare Service commanded by Maj. Gen. William L. Sibert.

Heretofore chemical warfare has been carried on by divisions in the Medical Department, the Ordnance Department and the Bureau of Mines. All officers and men who have been connected with offensive or defensive gas warfare here will be responsible to the Chemical Warfare Service. The field training section at present is under the Corps of Engineers.

DEFENSIVE WARFARE.

Defensive warfare has been under the control of the Medical Department. This work has consisted of the designing and manufacture of masks both for men and animals and the procurement of appliances for clearing trenches and dugouts of gas.

Offensive gas warfare consists principally of manufacturing gases and filling gas shells. The work has been under the direction of the Ordnance Department.

The new department will take over the work of chemical research for new gases and protection against known gases which has been carried on by the Bureau of Mines. All testing and experiment stations will be under the direction of the Chemical Warfare Service.

The responsibility of providing chemists for all branches of the Government and assisting in the procurement of chemists for industries essential to the success of the war and Government has been intrusted to the Chemical Warfare Service.

All chemists now in the Army will be removed from their units and placed under the authority of the Chemical Warfare Service. Newly drafted chemists will be assigned to the Chemical Warfare Service.

Authority to assign enlisted or commissioned chemists to establishments manufacturing for the Government has been granted to the new section.

A. PH. A. MEMBERSHIP PRIZES FOR MISSOURI PHARMACISTS.

Henry D. Llewellyn, of Mexico, gave two prizes of A. Ph. A. membership during his administration as president of the Missouri Pharmaceutical Association. He now offers an additional two for the year 1918-19. These prizes are open to all members of the Mo. Ph. A. In order to obtain one, it is necessary to get in on the honor list with a large number of new members for that association. Each Llewellyn prize pays one year's dues in the American Pharmaceutical Association. If the winner is not a member, he will be recommended for election. If he already belongs to the A. Ph. A., his dues will be paid by Mr. Llewellyn for one year.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

NEW YORK.

The May 1918 meeting of the New York Branch of the American Pharmaceutical Association was called to order by Acting President Turner in the Lecture Hall of the New York College of Pharmacy Building, on Monday evening, the 13th, at 8 15 o'clock. Sixty-two members were present.

The Treasurer's report was received and ordered filed.

Member of the Council: Professor Hostman brought in a brief report which was ordered accepted with the thanks of the Association.

Membership Committee: The following applications were received and the Secretary was directed to take the usual course with regard to these new members.

Morris Adoff, 546 Claremont Pkway, Bronx, N. Y.; John Paolantonio, 210 Gilbert St., Utica, N. Y.; Eugene T. O'Kane, 299 Gilbert St., Utica, N. Y.; Julius M. Pakehar, 367 S. 2nd St., Brooklyn, N. Y.; Samuel M. Goodman, 131 Spruce St., Newark, N. J.; Conrad E. Langfield, Northville, Mich.; Flower H. Reige, Tompkinsville, N. Y.; Henry C. F. Arnold, Quogue, N. Y.; Charles Shavel, 204 Columbia St., Brooklyn, N. Y.; Gerald A. Richardson, 152 Virginia Ave., Jersey City, N. J. The following from New York City: Benjamin Billig, 4003 Third Ave.; Max Bergman, 1570 Bathgate Ave.; Isaac Berniker, 1735 Washington Ave.; James Cicalello, 301 East 150th St.; George Casper Deffa, 168 E. 66th St.; Simon Doniger, 70 Sherman Ave.; Irving A. Edelstein, 1728 Crotona Park East; Bernard Eols, 2403 Watton Ave.; Isadore Flomenbaum, 1120 Vyse Ave.; Henry Frank, 2071 Vyse Ave.; Louis Friedman, 668 Teuton Ave.; Joseph Greenberg, 1047 Teller Ave.; Max M. Hager, 1484 Hoe Ave.; Miss Grace I. Harper, 10 West 101st St.; Max Heinovitch, 1078 Stebbins Ave.; Julius Kerr, 500 West 172nd St.; Joseph R. Kerr, 500 West 172nd St.; Nathan Kerr,

850 East 150th St.; Alexander Kornfield, 1005 Morris Ave.; Bruno K. Kulic, 821 Cauldwell Ave.; John D. Lore, 333 Second Ave.; David R. Mantoll, 71 East 121st St.; David Israel, 1037 Teller Ave.; Max Mathin, 2257 Second Ave.; Bernard Miller, 178 Brook Ave.; Jacob B. Moonves, 1426 Stebbins Ave.; Eugene Nagin, 290 Willis Ave.; George W. Pegg, 113 West 18th St.; Lawrence E. Pedroni, 1636 Melville St.; Oreste Petretti, 557 Fordham Road; Harvey Rabinowitz, 364 East 4th St.; Naftul Herz RaiCoy, 1525 Washington Ave.; Joseph Samsonoff, 1480 Vyse Ave.; Joseph Shapiro, 160 West 110th St.; Leo Licker; Charles Silkes, 85 Attorney St.; Abraham Solomin, 14 West 115th St.; Samuel Stein, 855 Home St.; Sidney Weinstock, 870 Freeman Street; Mendel Zagat, 850 East 150th St.; Anthony Armentano, 521 East 100th St.

Chairman Schaefer, of the Honor Roll Committee, reported that the suggestion was before the Council and would be acted upon.

Progress of Pharmacy: Dr. Diekman read abstracts on the following subjects: Sodium Fluoride, Tests for Castor Oil, Tannin in Pacific Coast Trees, Tetra Chlorethylene, Tests for Wooden Fibres, Substitution for Platinum.

After some discussion the report was ordered accepted with the thanks of the Association.

Committee on Education and Legislation: Mr. Lehman brought in a rather lengthy report, which, after some discussion, was ordered filed.

New Business: Mr. Mayo suggested that efforts be made to hold the next Convention of the A. Ph. A. in New York. The following resolution was unanimously carried.

Resolved, That the New York Branch of the American Pharmaceutical Association instruct its delegates to the Convention to invite the Parent Organization to New York for its 1919 annual meeting.

Dr. A. R. L. Dohme now took the floor and explained the details of his plan of federation of pharmaceutical bodies. Doctor Dohme was then followed by Prof. C. H. LaWall, who explained his views of the plan.

Prof. H. V. Army, Dr. H. C. Lovis, Dr. Jacob Diner, Prof. Jeannot Hostmann and Earl A. Means also took part in the program or discussed the plan.

HUGO H. SCHAEFER, *Secretary*.

COUNCIL BUSINESS

A. PH. A. COUNCIL, LETTER NO. 17.

PHILADELPHIA, PA., July 1, 1918.

To the Members of the Council:

Motion No. 26 (Election of Members; application Nos. 115 to 204, inclusive) has received a majority of affirmative votes.

Motion No. 27 (Investment in Liberty Bonds for A. Ph. A. Research Fund). Moved by J. A. Koch, seconded by H. M. Whelpley, that the Treasurer be directed to invest in Liberty Bonds, two thousand dollars or more, in addition to the ten thousand dollars already invested in such bonds, for account of the American Pharmaceutical Association Research Fund.

Motion No. 28 (Election of Members). You are requested to vote on the following applications for membership

- No. 205. Albert E. Baier, 322 So. Liberty Ave., Alliance, Ohio, rec. by F. J. Blumenschein and J. A. Koch.
- No. 206. Charles S. Johnson, care Tampa Drug Co., Tampa, Fla., rec. by M. K. Taylor and Wm. B. Day.
- No. 207. V. W. Estes, Orlando, Fla., rec. by W. G. Perry and M. M. Taylor.
- No. 208. W. M. Hankins, Daytona, Fla., rec. by W. G. Perry and M. M. Taylor.
- No. 209. N. H. Hunter, Fort Myers, Fla., rec. by W. G. Perry and M. M. Taylor.
- No. 210. Roy N. Chelf, Brooksville, Fla., rec. by D. W. Ramsaur and M. M. Taylor.
- No. 211. William Andrew Rawls, 25 S. Palafox, Pensacola, Fla., rec. by D. W. Ramsaur and M. M. Taylor.
- No. 212. Samuel S. Filer, care Fogarty & Co., Key West, Fla., rec. by Chas. Johnson and M. M. Taylor.
- No. 213. Harold Berlin Snyder, 20 Goepf St., Bethlehem, Pa. (Winner of Pharmacy Review Prize for Best Term Work in Pharmacy, Phila-

delphia College of Pharmacy), rec. by Ivor Griffith and Charles H. LaWall.

- No. 214. Henry C. F. Arnold, 173 E. 85th St., New York City, N. Y. (Winner of the J. Leon Lascoff Prize), rec. by J. Leon Lascoff and Geo. C. Dickman.
- No. 215. Anthony Armentano, 321 E. 109th St., New York, N. Y. (Winner of the J. Leon Lascoff Prize), rec. by J. Leon Lascoff and Geo. C. Dickman.
- No. 216. Gerald Arthur Richardson, 152 Virginia Ave., Jersey City, N. J., rec. by H. V. Army and Jeannot Hostmann.
- No. 217. Alvin George Florian, 2401 Cass Ave., St. Louis, Mo. (Winner of Prize awarded by the St. Louis College of Pharmacy for Excellent Scholarship), rec. by H. M. Whelpley and J. W. England.
- No. 218. Edgar Reynolds Thome, 2546 Reading Road, Cincinnati, O., rec. by H. M. Whelpley and J. C. Falk.
- No. 219. John J. Grasser, 1234 St. Andrew St., New Orleans, La., rec. by Robert F. Grace and Oscar Hurley.
- No. 220. Adley Bonisteal Nichols, 145 N. 10th St., Phila., Pa., rec. by Charles H. LaWall and J. W. Sturmer.
- No. 221. Newman Grady Hubbard, Lineville, Ala., rec. by Cicero Rudd and Wm. B. Day.
- No. 222. William John Trevaskis, P. O. Box 55, W. Memphis, Arkansas, rec. by Frank Schachleiter and Wm. B. Day.
- No. 223. Miss Helen Stauffer, Locust St., Valparaiso, Ind., rec. by Mrs. Geo. D. Timmons and Anna G. Bagley.
- No. 224. Adrian Andrew Arnaud, 417 Cherokee St., New Orleans, La., rec. by Robert F. Grace and O. B. Elmer.

- No. 225. Ruth Caroline Menger, 1500 N. 29th St., Phila., Pa., rec. by Ivor Griffith and Robert P. Fischelis.
- No. 226. Frank Hawkins, Blair, Okla. (Winner of John W. Barbour Prize in Pharmacy), rec. by H. S. Browne and Wm. B. Day.
- No. 227. Velvie Bridal, Marshall, Okla. (Winner of Howard Storm Browne Prize in Materia Medica), rec. by H. S. Browne and Wm. B. Day.
- No. 228. Max A. Zielinski, Cleveland, Ohio. (Winner of Prize for Best Student in Pharmacy, Cleveland School Pharmacy), rec. by Louis C. Hopp and Wm. B. Day.
- No. 229. George W. Wood, 6642 Michigan Ave., Chicago, Ill. (Winner of Gray Prize Membership, Univ. of Illinois, School of Pharmacy), rec. by Wm. Gray and Wm. B. Day.
- No. 230. Mrs. Neff K. Bakkers, 10900 S. Michigan Ave., Chicago, Ill. (Winner of Prize Membership, Univ. of Illinois, School of Pharmacy), rec. by Wm. B. Day and E. N. Gathercoal.
- No. 231. Milton Stein, 2223 N. Front St., Phila., Pa., rec. by C. H. LaWall and Ivor Griffith.
- No. 232. Frederick R. Pritchard, 232 Chestnut St., Kingston, Pa., rec. by Charles H. LaWall and Ivor Griffith.
- No. 233. William F. Sudro, 1117 13th St., No. Fargo, N. Dak., rec. by A. F. Schlichting and W. P. Porterfield.
- No. 234. C. W. Atkinson, Box 1521, Dallas, Texas, rec. by J. M. Fletcher and E. G. Eberle.
- No. 235. Jacob Joseph Cohan, 53 Spring St., Boston, Mass., rec. by Charles H. Hitchcock and J. W. England.
- No. 236. Daniel Henry Hills, Spring Lake Beach, N. J., rec. by Edgar R. Sparks and Hugo Kantrowitz.
- No. 237. Deane C. Bartley, 1219 W. 11th Ave., Spokane, Wash., rec. by H. M. Whelpley and F. F. Berg.
- No. 238. Mitchell Block, Excelsior Springs, Mo., rec. by Paul L. Hess and H. M. Whelpley.
- No. 239. Clarence Wierks, care Schlagel's Pharmacy, Davenport, Ia. (Winner of Scherling Prize for Excellence in Organic Chemistry, Univ. of Iowa, School of Pharmacy), rec. by G. Scherling and Wilber J. Teeters.
- No. 240. J. R. Doden, care E. Jerico, Moline, Ill. (Winner of Prize for Recognition and Description of Organic Drugs, given by W. J. Teeters, Univ. of Iowa, College of Pharmacy), rec. by Wilber J. Teeters and J. W. England.
- No. 241. Joseph Samuel Goldwag, 1081 Amsterdam Ave., New York, N. Y., rec. by William C. Anderson and Jacob H. Rehfus.
- No. 242. Daniel C. Mangan, 95 Park Ave., Brooklyn, N. Y., rec. by William C. Anderson and Jacob H. Rehfus.
- No. 243. William H. Weygandt, 170 So. 9th St., Brooklyn, N. Y., rec. by William C. Anderson and Jacob H. Rehfus.
- No. 244. Alfred Richard Johnson, Little Falls, Minn. (Winner of Prize in Chemistry given by Prof. A. H. Clark in Univ. of Illinois, School of Pharmacy), rec. by A. H. Clark and Wm. B. Day.
- No. 245. Guy Oram Tehner, 279 Greene Ave., Brooklyn, N. Y., rec. by Jos. L. Turner and Turner F. Currens.
- No. 246. Diadato Villamena, 2237-1st Ave., New York, N. Y., rec. by Hugo H. Schaefer and H. V. Army.
- No. 247. Joseph E. Hartman, 115 W. McCarty St., Indianapolis, Ind., rec. by I. E. Taylor and Wm. B. Day.

J. W. ENGLAND,

Secretary.

415 N. 33RD STREET.

A. PH. A. COUNCIL LETTER NO. 18.

PHILADELPHIA, July 1, 1918.

To the Members of the Council:

Word has been received of the demise yesterday of William Lawrence Dewoody of Pine Bluff, Arkansas, Honorary President of the American Pharmaceutical Association. He was born in Athens, Ala., on December 30, 1848.

A sketch of his life is given in the November 1917 JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

J. W. ENGLAND,

Secretary.

415 N. 33RD STREET.

COMMITTEE REPORTS

THE DRUG MARKET OF 1917.*

BY HARRY B. FRENCH.

We are repeating the opening clause of our report for the drug market in 1916. We would say that the conditions governing business in 1917 were very much the same as those in 1916, only more so. Conditions have become more complicated because of the increasing difficulty of securing shipments. It is true that freight space is obtainable for shipment from abroad, while it is practically unobtainable for shipments from this country. It is necessary, however, to obtain a license for every shipment from abroad, as well as for all goods exported from this country. Owing to the disturbed conditions in Russia, the products of that country come forward very irregularly. Shipments from the Far East are difficult to make. When the goods are obtainable, shipments can be made from Italy, France and England, in vessels arriving in those countries with full cargoes from the United States.

The increasing demand in all countries for Government requirements and the increasing demand upon man-power, increases the difficulty of cultivating and gathering crude drugs. In a number of important items, the Government demands are so large that it practically absorbs the whole product. Many of these products are now licensed. In the case, for instance, of Acetic Acid, it is impossible to obtain this acid for resale, although moderate supplies can be obtained for use in manufacturing medicinal products.

The difficulties confronting distributors are becoming increasingly difficult. A very large proportion of their employees are of the floating variety and among these, we are sorry to say, there is a very insufficient sense of personal responsibility. Employers accept applicants without asking for references and almost without asking for qualifications and hesitate to discharge them even for serious causes. The distributor, therefore, is faced with the problem of greatly increased distribution with decreased efficiency in his working force. The cost of doing business has enormously increased and is still increasing. This is made up not only of the increased cost of labor but of everything that enters into business transactions—rates for money are very much higher, the cost of packing boxes, barrels, twine, excelsior, cartage and other numerous items that enter into that of doing business has been greatly increased. Conditions are such that it is not so much now a matter of price as of being able to furnish the goods and of packing them and shipping them. It must be, moreover, borne in mind that the price of a very considerable portion of the goods distributed by wholesale druggists is fixed and the profit has not increased with the increased cost of doing business. It is the opinion of the writer that the increased cost of doing business during the present year will be found to have a more important bearing on profits than in any previous year of the war; this will be found to be an increasingly important factor, if this terrible war is prolonged. It is certain that no wholesale house in the United States is making such profits as would class it among those who are designated as "profiteers."

It is very important that retail druggists should realize these conditions, which also to a large extent directly affect them, so that they may make allowances for the difficulties encountered by the wholesale druggists in filling their orders; and also that they may realize and bear in mind the necessity of charging a profit on the goods that they sell and for the service they render. The dealer who fails to recognize these conditions to charge a larger profit for services and for goods is liable to suffer heavy pecuniary losses, which he may not realize until he closes his account at the end of the year.

Referring to particular articles, we would call your attention to the following:

Acetanilid and Acetphenetidin, through the increased production in this country, have been greatly reduced in price.

* From Report of Committee on Trade Interests, B. E. Pritchard, *Chairman*, presented to the Pennsylvania Pharmaceutical Association, meeting at Wilkes-Barre, June 1918.

Benzoic Acid.—The Government now strictly limits the quantity of Toluol that can be used and therefore the products of Benzoic Acid will be limited. The price, however, is today very much lower than a year ago. We think it will probably not again reach the figure of \$10 to \$12 per lb., unless under pressure of temporary necessity.

Citric Acid has advanced considerably and there has been talk of limitations of importations of Citrate of Lime, but the manufacturers in this country seem to have caught up with the demand and will supply the legitimate trade at reasonable prices.

Acid Salicylic and Sodium Salicylate are being produced in larger quantities and sufficient to meet demands.

Acid Tartaric has very largely advanced and it is not liable that lower prices will be seen.

Agar Agar, or Japanese isinglass, is being used in new ways and is much higher in price, owing to the increased cost of importation and because of its larger demand.

Agaric is unobtainable.

Albumen—apparently egg albumen—is being used for new purposes, as it has largely advanced and is very scarce.

Alcohol, Ethyl, is selling on the basis of \$5.25 in barrels.

Alcohol, Wood, has been taken under Government control and is selling for \$1.15 per gallon in barrels.

Aloin.—The demand is extremely large and the price has advanced correspondingly.

Some of the chief articles of import, like Calumba Root, Areca Nuts, and Kola Nuts, are becoming scarcer and may possibly disappear from the market because of difficulties of obtaining freight room for cheap products.

Arrowroot is extremely scarce, St. Vincent advancing from about 6 c. to 40 c. lb. in barrels.

Arsenic has been taken under Government control. At one time the price was as high as 25 c. lb. in kegs, but is now about 16 c. lb.

Balsam Copaiba remains about 95 c. lb.

Balsam Tolu has become extremely scarce.

Bark, Calisaya was for a time almost unobtainable but supplies are now larger.

Bark, Cascara Sagrada, is about double in price. The output this year is held for high prices.

All American crude drugs will be very much higher.

Bay Rum is selling for about \$4.00 per gallon.

Camphor advanced to \$1.20 lb. for ounces in pound packages in 100-lb. cases. The Japanese not only control the supplies of crude camphor but apparently are trying to freeze out American manufacturers.

Cantharides, Russian, are in only moderate supply.

Cloves, Zanzibar, in a small way, 65–70 c. lb.

Cocaine, muriate, is constantly advancing. The manufacturers have announced another advance of \$1.00 oz., June 12.

Cochineal is almost unobtainable and only at very high prices.

Cacao Butter is showing a firmer tendency.

Opium and its products are somewhat lower, as supplies have been more abundant.

Mercurials are all firm at the prevailing previous high prices.

Coumarin is selling as high as \$32.00 lb. This is partially due to a strike that took place in the establishment of the largest production.

Cream of Tartar and Tartaric Acid are both very high and firm in price.

Cutch.—The Government has taken over the control of this article and will sell only under certain specifications.

Cuttlefishbone, in a small way, 60–65 c. lb. Supplies are small.

Ergot is getting very scarce. It is quoted in a small way at \$1.25 lb.

The tendency towards higher prices is more strongly evidenced in Crude Drugs, while there are conflicting currents affecting the prices of Chemicals.

Gelatin is not manufactured in the summer and for several months we expect small supplies and higher prices.

Glycerin.—There are two different opinions prevailing to-day as to the future course of glycerin—some think it may go down and some that it may go up. The predominating opinion is that it will advance.

Aloes—All kinds are in small supply and very high in price.

Gum Arabic is selling at about two and one-half times the usual price.

Asafetida is extremely high in price, in a small way \$2.50 lb.

Gum Tragacanth No. 1, white, ribbon, in a small way, \$3.00 lb.

Harlem Oil, domestic, of superior quality, may now be obtained at reasonable prices.

Honey, California, is selling at about four hundred percent over the usual price.

Insect Powder, pure, is in reasonable supply and is obtainable in kegs at 40 c. lb.

Leaves, Belladonna, of excellent quality, are very largely grown in this country. Prices are lower and the situation is very much better.

Leaves, Buchu, are in small supply and the scarcity is apt to continue.

Leaves, Henbane, are in larger supply.

Licorice Root and *Licorice Extract* are in small supply. It is hoped that later the extreme shortage may be relieved by shipments from Spain.

Lycopodium is a Russian product that is in good supply at present.

Magnesium Carbonate is getting scarcer and prices are advancing.

Menthol is firming up, but it must be remembered that Germany, who was one of the largest buyers, is no longer a customer.

Essential Oils are all strong.

Oil, Castor, is worth \$4.00 per gal. in 5-gal. cans. Immense quantities of the finest grade of castor oil are required for aeroplanes.

Oil, Cod Liver, will remain high. The Newfoundland variety has practically entirely taken the place of the Norwegian. The price is \$1.10 per gallon in barrels.

Olive Oil is almost unobtainable; in a small way, in 1-gal. cans, the asking price is \$7.80 per gallon for the first quality of table oil.

Oil, Sassafras, true, is in very small supply and will continue so for several months. The price to-day in a small way is about \$2.50.

Quinine Sulphate is obtainable for small supplies. We are informed that reasonable supplies of bark are coming forward, but it is certain that the present high prices will continue and may be advanced. The American manufacturers' price is 75 c. oz. in 100-oz. tins. Outside holders are getting \$1.20 per ounce.

Roots.—Some of the roots are unobtainable and many of them are very scarce.

Root, Rhubarb, has advanced from 20 c. to 65 c. lb. in case lots.

Root, Senega, in bales, is worth \$1.10 lb.

Saffron, Spanish, \$18.00 lb.

Seeds.—Many seeds also are in small supply and very firm in price.

Seed, Canary, in bags 17 c. lb.

Seed, Celery, 42 c. lb.

Seed, Colchicum, \$4.00 lb.

Seed, Fennel, large, German, almost out of the market, \$1.10 lb.

Seed, Flax, in bbls., 11 c. lb.

Seed, Foenugreek, ground, in barrels, 17 c. lb.

Seed, Quince, in a small way, \$1.50 lb.

Seed, Sunflower, domestic, in a small way, 10 to 12 c. lb.

Soap, Castile, Conti's, out of the market.

Sugar, Milk, in barrels, 55 c. lb.

Tur, Barbadoes, unobtainable.

Notwithstanding the high prices, it is a matter of great importance that all dealers should carry in stock a reasonable supply of crude drugs and other products for which there is a steady demand. Those who have the courage and the foresight to do this will find that they can charge a price that will bring them in a reasonable profit.

AMERICAN PHARMACEUTICAL ASSOCIATION

Organized: Philadelphia, 1852.

Incorporated: Washington, D. C., 1888.

OFFICIAL ROSTER FOR 1917-1918.

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| H. B. MASON, Detroit, Mich..... | Term expires 1919 |
| S. L. HILTON, Washington, D. C..... | Term expires 1919 |
| FREDERICK J. WULLING, Minneapolis, Minn..... | Term expires 1920 |
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* Deceased November 19, 1917.

† Deceased June 30, 1918.

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| W. A. PUCKNER, Chicago, Ill. | Term expires 1920 |
| JOHN G. ROBERTS, Philadelphia, Pa. | Term expires 1921 |
| OTTO RAUBENHEIMER, Brooklyn, N. Y. | Term expires 1921 |
| GEORGE D. ROSENGARTEN, Philadelphia, Pa. | Term expires 1921 |
| O. A. FARWELL, Detroit, Mich. | Term expires 1921 |

* Deceased November 19, 1917.

† Deceased October 13, 1917.

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| W. H. COUSINS, Dallas, Tex. | Term expires 1921 |
| JOHN C. WALLACE, New Castle, Pa. | Term expires 1922 |

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(Appointed by the President.)

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| H. H. RUSBY, 776 DeGraw Ave., New York, N. Y. | Term expires 1923 |
| WILLIS G. GREGORY, 344 Richmond Ave., Buffalo, N. Y. | Term expires 1924 |

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| H. A. B. DUNNING, Baltimore, Md. | Term expires 1922 |
| HERMANN ENGELHARDT, Baltimore, Md. | Term expires 1923 |
| A. B. LYONS, Detroit, Mich. | Term expires 1924 |
| WILLIAM MITTELBACH, Boonville, Mo. | Term expires 1925 |
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| GEORGE D. TIMMONS, Valparaiso, Ind. | |

* Deceased October 13, 1917.

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TIME AND PLACE OF NEXT MEETING.

| | | | |
|--------------------------------------|-------------------|-----------------------|-------------------|
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| PHILIP ASHER..... | New Orleans, La. | THEO. J. BRADLEY..... | Boston, Mass. |
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**PROGRAM OF THE SIXTY-SIXTH ANNUAL CONVENTION OF THE AMERICAN
PHARMACEUTICAL ASSOCIATION, CHICAGO, ILL., AUGUST 12-17, 1918.**

HEADQUARTERS—CONGRESS HOTEL, MICHIGAN BOULEVARD, CONGRESS TO HARRISON STS.

MONDAY.9.30 A.M. National Association Boards of
Pharmacy.2.00 P.M. National Association Boards of
Pharmacy.American Conference of Pharma-
ceutical Faculties.8.00 P.M. National Association Boards of
Pharmacy.American Conference of Pharma-
ceutical Faculties.**TUESDAY.**9.30 A.M. National Association Boards of
Pharmacy.American Conference of Pharma-
ceutical Faculties.2.00 P.M. Joint Session of National Associa-
tion Boards of Pharmacy and
American Conference of Phar-
maceutical Faculties.

7.00 P.M. Council Meeting.

8.00 P.M. First General Session of Associa-
tion.**WEDNESDAY.**

9.30 A.M. Scientific Section, first session.

Section on Education and Legis-
lation, first session.

Women's Section, first session.

12.30 P.M. Alumni Luncheon.

2.00 P.M. Commercial Section, first session.
Section on Practical Pharmacy and
Dispensing, first session.

4.30 P.M. House of Delegates.

7.00 P.M. Council Meeting.

8.30 P.M. President's Reception

THURSDAY.9.30 A.M. Section on Education and Legisla-
tion, second session.Commercial Section, second ses-
sion.

Historical Section, first session.

2.00 P.M. Section on Practical Pharmacy and
Dispensing, second session.

Scientific Section, second session.

Women's Section, second session.

5.00 P.M. Council Meeting.

7.30 P.M. Illustrated Lecture on "The Indi-
cations of Medicinal and
Poisonous Properties in Plants,"
by H. H. Rusby.8.15 P.M. Second General Session of Associa-
tion**FRIDAY.**

9.30 A.M. Scientific Section, third session.

Section on Practical Pharmacy and
Dispensing, third session.Joint Session National Association
of Boards of Pharmacy.American Conference of Pharma-
ceutical Faculties, and the Sec-
tion on Education and Legisla-
tion.

2.00 P.M. House of Delegates.

4.00 P.M. Entertainment.

SATURDAY.

9.00 A.M. Council Meeting.

10.00 A.M. Final General Session of Associa-
tion.

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QUININE AND WARBURG'S TINCTURE IN MALARIA.

Complex formulas of medicinal preparations are oftentimes criticized for the chief reason, that they contain a number of constituents. Frequently the criticism is justified, but certainly not always, for after all in the practice of medicine, as Doctor Robinson has tersely stated: Science, so-called and merely temporary, must give way to experience, based upon long and careful bedside observation of the wise practitioner.

Replying to a communication of Dr. H. Rabinowitch, published in the *Medical Record* of June 8, 1918, Beverly Robinson, M.D., of New York, writes in a succeeding issue of the same publication: "Of course, I am familiar with the fact that Warburg's tincture contains a proportion of quinine. Nor do I doubt that some of its remedial effects are due to the presence of this alkaloid. On the other hand, I also know and affirm again that in not a few instances quinine in similar or much larger quantity is wholly inadequate to effect a cure of malaria. Warburg's tincture in these instances effects the cure. Why, I cannot precisely say, nor can anyone else. It contains numerous drugs, and among them there may be some that are inert. It still remains true that the multiple combination does what nothing else known up to the present time effects in some most obstinate and imminently threatening cases. That we know, as shown by repeated proofs and the published records of some of the best clinicians of former days.

"*Ars longa, vita brevis*. The greatest rôle of the physician is to cure and to relieve symptoms. Science, so-called and merely temporary, must give way to experience, based upon long and careful bedside observation of the wise practitioner. Only a few days ago the distinguished Surgeon-General of our Army insisted in an address before the University and Bellevue Hospital Medical College upon the great value of the all-round doctor with our army at the front

as compared with the specialist whose importance has a relatively limited field of work in time of greatest stress. I wish, particularly, at the present time, to insist that useful knowledge of our great forebears in medicine shall not be practically ignored. For this reason I wrote a strong word for Warburg's tincture in the treatment of malaria. In more than one of our latest and best works on the practice of medicine it is scarcely referred to."

OIL CHENOPODIUM.

Oil of chenopodium is an unusually valuable anthelmintic, and it is employed quite extensively in the treatment of hookworm disease.

An investigation, on the composition of the oil and the anthelmintic value of some of its components, by Maurice C. Hall and Herbert C. Hamilton, is reported in *The Journal of Pharmacology and Experimental Therapeutics* for April 1918, pp. 231-261. Reference is made to Schimmel and Company's *Semi-Annual Report*, April 1908, wherein it is stated that ascaridol (which apparently corresponds to the heavier fraction of oil of chenopodium) is the part responsible for the therapeutic activity of the drug, a statement which has generally been accepted. The authors' conclusions, from their extended experiments are, that the lighter portion of the oil is more anthelmintic and much less irritating. They make the further statement that, if clinical data confirm their experiments, the use of the refined product would be distinctly indicated, notwithstanding such expense. The experiments would prove that the gastro-intestinal irritation induced by administration of the oil is due to that portion remaining after distillation at temperatures below 125° C. with a pressure equal to 30 mm. of mercury, or at equivalent temperatures and pressures.

W. H. Ziegler contributed an article on oil of chenopodium to the *Interstate Medical Journal*, October 1917, wherein he reports that the absorption of the oil is more rapid

from the stomach than from the intestines, and the absorption is delayed when the oil is administered in salol-coated capsules. He also states that atropine antagonizes the depressant effect upon the respiration; the cause of death in the dog when the oil is administered in toxic doses is an acute diffused nephritis; small doses are non-toxic and the toxicity is not influenced by the age of the animal. This author's findings are that the oil of the market does not greatly vary in potency and cites as the principal causes for fatal effects, the failure of the practitioner to differentiate between drops and minims, and of not following therapeutic doses with a purge, either of magnesium sulphate or castor oil.

A PHARMACEUTICAL CHEMIST KNIGHTED.

Peter Wyatt Squire, chemist on the establishment of the English Royal Household, has had the dignity of Knighthood conferred upon him. The preferment has not only value



SIR PETER WYATT SQUIRE.

because conferred for merit, but also because it is a signal honor to pharmacy. The honored pharmacist is well and favorably known through his works and contributions to the English pharmaceutical press. Since the outbreak of the war, among other special pharmaceutical war service, one of the most important has been the production by him, in collaboration with Sir Douglas Powell, of the

foot ointment used with so much success for the prevention of frost-bite in the trenches.

Sir Peter Wyatt Squire was a student and prize-winner in the British Pharmaceutical Society School in 1864. He served as member of the Council of the Society from 1879-1885. He read a paper on the standardization of drugs before the International Congress of Chemistry in 1909. His work best known to American pharmacists is "Squire's Companion to the Pharmacopoeia," inaugurated by his father, the later Peter Squire, president of the British Pharmaceutical Society, 1861-1863.



W. L. CURRIE.

New President, Pharmaceutical Society, Great Britain.

JAPAN HONORS A PHARMACIST.

M. Hata, Japanese pharmacist, formerly president of the Army Sanitary Material Warehouse, has been created a major-general, at the head of the Japanese Army sanitary department. Until recently pharmacy has been neglected in Japan, but now in recognizing the value of pharmacy, the country has shown her progressiveness. Dr. Jokichi Takamine, member of the A. Ph. A., at present in Japan, has communicated this information, evidently, because it gave him great pleasure to do so.

MACHINE GUN COMPANY WILL BE MADE UP OF GRADUATES IN PHARMACY.

A machine gun company that has enough money to buy its own guns and own uniforms

is being organized. When formed it will be turned over as a complete unit to the 22nd Engineers, New York Guard.

Already the regiment has a company made up of journalists and advertising experts under command of Capt. F. A. Adams.

E. C. Martindale, Ph.G., doing technical work at Roosevelt Hospital, and a sergeant major of the 3rd Battalion, 22nd Engineers, is recruiting for this ultra-pharmaceutical company. He states \$3,200 has been donated by members for machine guns and \$1,000 more for uniforms. Other companies in the 22nd are equipped and recruited at the expense of the State.

Members have been secured from the working forces of the following firms: Parke, Davis & Co., Sharp & Dohme, Caswell, Massey Co., E. R. Squibb & Sons, Frederick Stearns & Co., L. K. Liggett Co., A. Boujouis Perfumery Co., Nyal Co., Walter John Fraser, Harriman Laboratory, Roosevelt Hospital, Certified Products Co., and Ricksecker & Weigand.—*N. Y. Commercial*.

ENDOWING CHEMICAL RESEARCH.

The du Ponts have established thirty-three scholarships and eighteen fellowships in chemistry in various colleges and universities. This action complements and supplements the large number of chemists who are employed daily in the laboratories of the various duPont plants and engaged in research. If the example thus set will be followed by others of the large chemical industries the colleges will be benefited, and, in turn, the industries will be protected at their most vital points, that is, in those matters where applied expertness counts and mere mechanical output is at a discount.

In a degree the suggestion is applicable to pharmaceutical enterprises, there is opportunity for research in colleges of pharmacy along various lines, but most of them are not endowed sufficiently to greatly extend this necessary work, unless aided.

AMERICAN SURGEONS ISOLATE TRENCH FEVER GERM.

The United States Medical Corps, under the leadership of Surgeon-General William Gorgas, has succeeded in isolating the germ of trench fever.

The success of the American tests, reported in a cablegram from General Pershing to Secretary of War Baker, was made possible by the voluntary sacrifice of sixty-six American

soldiers—all members of noncombatant units of a New England division—who submitted to inoculation with the germ in January. General Pershing's message says all of the men now are either cured or convalescent. These men were from field hospitals and ambulance organizations.

PHARMACISTS BRAVE DEATH.

In a recent news item pharmacists were not specifically named in the headlines but the paragraphs spoke of their courage. The occurrence was during a violent attack when the bandages ran low. Harry W. Jarvis, U. S. N., Philadelphia, chief pharmacists' mate, in response to the Surgeon's call, "we must have bandages," volunteered to make a trip to the rear; he made the trip and returned with the bandages.

German prisoners were carrying in wounded and the intensity of the enemy shrapnel fire was such that three of them were killed at the doorway of the dressing station. Captain Orlando S. Petty, of Philadelphia, an assistant surgeon, was operating in a ditch on the opposite side of the road which was lit up by the flashes from exploding shells.

Finally the surgical dressings caught fire and, unable to work any longer, the doctors were compelled to evacuate the place under a deluge of high explosive shells. Lee J. McDaniel, Newport, R. I., Frank O. Tibbetts, Dorchester, Mass., and Claude Mattingly, Santa Rosa, Calif., pharmacists' mates, and Roy J. Israel, hospital apprentice, Allentown, Pa., were assisting the surgeons. Twenty wounded Americans and thirty wounded Germans were lying at the roadside at the time. The men named removed the entire fifty, carrying them to the nearest point to which the ambulances could come.

The next day McDaniel, who seemed to bear a charmed life, and Marion L. Turner, Pharmacist's mate, Milwaukee, Wis., made five trips through the barrage to reach wounded, bandage the men and bring them out.

George A. Jones, hospital attendant, Brooklyn, N. Y., gave a courageous example of faithfulness, dressing the wounds of his fallen comrades while under machine gun fire. When exhausted he made his way back to the regimental hospital unassisted, refusing aid until all the others had been cared for. Algernon G. Brumlee, pharmacist's mate, Spray, N. C., located a machine gun sniper's pit by offering himself as a target.

Unwounded he returned, signalled the position and had the satisfaction of seeing the first shell send the gun and crew into the sky in the shape of fragments.

Members of the Sixty-fifth sanitary section of the United States army were cited for courage in action recently in a communique signed by Divisional General Targe, commander of the 121st Infantry Division.

"In the heavy battles taking place at the present moment," says the statement, "the American personnel of the S. S. U. 65 has commanded, as in the past, the admiration of the officers and soldiers of the 121st Division."

"Always ready to go forward to the zones most intensely under enemy fire, the Americans expose themselves voluntarily to rescue and bring back our wounded. Worthy sons of their great country, they show the initiative, the audacity, the calm courage of their race."

"In the name of their brothers of the French army, the general commanding the division thanks them and congratulates them."

WOMEN CHEMISTS NEEDED.

The Committee on Public Information, Division on Women's War Work, issues the following:

Women chemists are needed by the Government and also to stabilize the industries by replacing men chemists who have been called into service, according to Capt. Frederick E. Breithut, of the Chemical Service Section of the National Army. This call is so urgent that he has asked the women's committee of the Council of National Defense to cooperate with the Army Medical Department in making a census of all the available women chemists in the country.

ENOUGH DENTISTS NOW IN ARMY TO CARE FOR 5 MILLION MEN.

The following statement is authorized by the War Department from the office of the Surgeon General:

The dental requirements of an Army of more than 5,000,000 men can now be met by the present force of the Dental Corps of the American Army. Examinations for dental officers have been closed and no further additions will be made to the corps for at least six months.

LIBERTY LOAN INTEREST RATES.

Secretary McAdoo officially corrects a statement appearing in various newspapers that the Fourth Liberty Loan will bear interest at the rate of $4\frac{1}{2}$ percent. He states that no thought has been entertained of issuing the bonds of the fourth loan at a higher rate than $4\frac{1}{4}$ percent.

It is interesting to recall here the Secretary's appeal in his Third Liberty Loan speeches that the rate of interest for Government loans be stabilized at $4\frac{1}{4}$ percent. He said then that as an intelligent people we should make a stand for the financing of our Government during the period of the war at a stabilized rate of interest, naming $4\frac{1}{4}$ percent as the proper figure, so that all business and investments might be adjusted on that basis. In his letter to Majority Leader Kitchin he strongly urges stabilizing the rate at $4\frac{1}{4}$ percent.

The Secretary of the Treasury has also asserted he did not think that the patriotism of the American people was measured by the rate of interest on a Government bond, and the support the people gave the Third Liberty Loan seems to have justified his belief.

LARD SUBSTITUTE.

An Oregon chemist has completed experiments with hydrogenation of fish oil, which according to reports is acceptable to the U. S. Food Administration. The subject of suitable bases for ointments is an interesting one for pharmacists.

Dr. J. N. Rose of the National Museum of the Smithsonian Institute and a party of other scientists will investigate the opportunities for obtaining cinchona bark in Ecuador, and also other drugs and dye-woods.

Government officials believe that this expedition will be the first of a series into all the South American countries to develop commercial plant possibilities to replace certain products on which the United States has heretofore been dependent upon Germany.

Henry Kendall Mulford of Philadelphia has been honored with the degree of Master of Science by Lafayette College, Easton, Pa. Prof. Edward Hart presented Mr. Mulford to the President of the College. The former referred to Mr. Mulford as one who has led his profession in the field of preventive medicine. "It has been truly said," the speaker

continued, "that the good physician is the great benefactor. How much more a benefactor the man whose work guides and extends the activities of the good physician."

Henry K. Mulford, Jr., has returned from France on a short leave of absence. He has been in the Red Cross Service "Over There."

Clyde L. Eddy, managing editor of the *Druggists Circular* since January 1917 has

enlisted in the Army and will go with the Signal Corps as news Photographer. He is now pursuing a preparatory course of study in the U. S. School of Military Cinematography. Mr. Eddy graduated from the California College of Pharmacy in 1912 and was editor of the *Pacific Pharmacist* before engaging with the first named publication. Mr. Eddy has for several years participated actively in A. Ph. A. work.

OBITUARY.

WILLIAM LAWRENCE DEWOODY.

At the Indianapolis meeting of the American Pharmaceutical Association W. L. Dewoody of Pine Bluff, Ark., was elected honorary president. In accepting of the honor Mr. Dewoody said in substance: "I desire that the members understand that my expression of thanks for the honor conferred comes from the heart. I appreciate the privilege of being associated with a body of men whose efforts are for the elevation of pharmacy. My heart has always been with you socially and professionally. I could ask for no greater honor than this and I feel that it is an expression from the hearts of the members of this Association, as a testimonial of my sincerity. I will try to keep the title an honorable one."

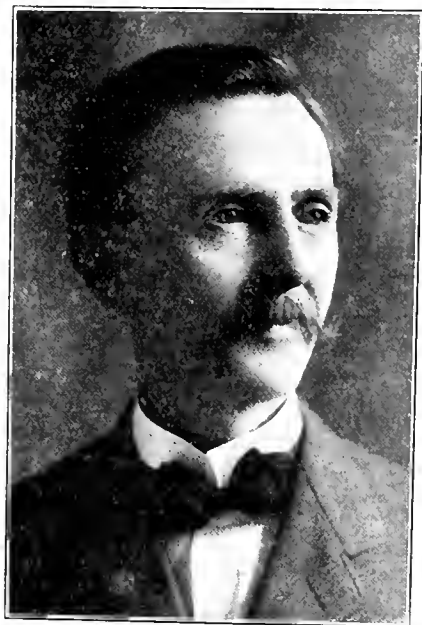
Faithful until death, Mr. Dewoody passed away Sunday, June 30, 1918, aged 70 years. The Association sorrows with the bereaved widow and family and extends sympathy in their loss. It is a striking incident that Mrs. W. L. Dewoody, Mrs. Alfred Husted and Mrs. Charles Holzhauer should have constituted the Resolutions Committee of the Women's Section at the Indianapolis meeting.

"While it is a great joy to meet and renew old friendships, it deepens our sorrow and regret that any should be missing," they said.

And these words supply the writer with an expression, for it has been his privilege to associate with the deceased and their good life companions for many years and each year the friendship seemed stronger because we knew each other better. "To the past go more dead faces, Every year; as the loved leave vacant places, Every year;"—

The brief sketch of Mr. Dewoody in the November issue, 1917, of the *JOURNAL*, was closed with these lines: "His face is turned to the sunset and he rests secure in the love,

esteem and confidence of the community at large."



W. L. DEWOODY.

Honorary President A. Ph. A., 1917-1918.

Mr. Dewoody was born in Athens, Ala., December 30, 1848 and came to Pine Bluff, Ark., May 12, 1870, and here he thereafter resided, not only making a success in business affairs but actively interested in the duties of a good citizen. The deceased joined the American Pharmaceutical Association in 1887 and very infrequently missed a meeting thereafter.

Mrs. Dewoody, who usually accompanied her husband to the annual A. Ph. A. meetings, and eight children survive the deceased.

JOHN HARPER LONG.

John Harper Long, professor of chemistry at the Northwestern University died at his home in Evanston, Ill., June 14, after an illness of over six months. Professor Long was born near Stenbenville, Ohio, in December 1856. He was graduated from the University of Kansas in 1877, and later studied at Tübingen, Germany, receiving the degree of doctor of science in 1879. He was appointed professor of chemistry in the medical school of Northwestern University in 1881. Professor Long was a member of the referee board of consulting scientific experts of the United States Department of Agriculture.



J. H. LONG.

He was a chemist of the state board of health and of the sanitary district of Chicago. He served as president of the American Chemical Society in 1903, of the American Association for the Advancement of Science in 1903 and of the Institute of Medicine of Chicago in 1917. Professor Long was a member of the United States Pharmacopoeia Revision Committee, and from the time of its organization until his death a member of the Council on Pharmacy and Chemistry. He was a member of the American Pharmaceutical Association from 1915-17. During 1913-17 he was dean of the school of pharmacy of Northwestern University.

Professor Long did much chemical research work, particularly in the branches of physiologic chemistry closely related to medicine. As a member of the Council on Pharmacy and Chemistry he not only gave much

time to the routine work, but in addition carried out many original investigations.

Professor Long leaves, besides his widow, Catherine S. Long, four sons—Albert, Esmond, Lothar, Captain, United States Marine Corps in France, and Byron, Lieutenant, United States Army—and one daughter, Ariel, wife of Lieut. E. P. Miller of Washington, D. C.

GEORGE LEIS

The life of George Leis was a most eventful one, coming to Kansas in the pioneer days, the family settled in Lawrence when it was a settlement of sod houses, dugouts and tents.



GEORGE LEIS

One of the founders, University of Kansas, and of the Department of Pharmacy.

He was born in New York City February 18, 1842; in 1854 his parents emigrated to Kansas. The father died two years later and it devolved on the son to assist in the support of his mother and family. These were troublesome times in Kansas, due to raiders and it became necessary for the settlers to defend themselves and rid the country of the undesirables. In this work Mr. Leis participated and when a few years later the war broke out he answered the country's call to service.

During the years from 1857-62 he had clerked in the drug store of Woodward and Finley and studied medicine under Doctors Fuller and Miner. Returning to Lawrence, after the close of the war, he engaged in the

drug business and this small beginning developed into large proportions and was later incorporated as the Leis Chemical Co.

Mr. Leis was active in many of the enterprises of Lawrence, especially those which had for their object the promotion of the business, educational and social welfare of the city and State. He was a heavy contributor to the first university building and in 1887 he was influential in establishing a Chair of Pharmacy in the State University.

The *Lawrence Journal World* in the opening paragraphs of the sketch relating to the deceased says: "George Leis died Saturday, May 25. He was one of the most prominent business men of Lawrence. His passing away is an event in the history not only of the city of Lawrence but of the state of Kansas, for

his whole life was devoted to the building up of the state.

"George Leis was one of the clear visioned pioneers who saw and worked for the future prosperity of Kansas even while he endured the trials of the early days—trials such as this part of the country will never again know. He lived through the early day famines caused by drought and pests, the destructive raids of the Border Ruffian war and Civil war and the financial crises that brought ruin to so many of the old business men."

Mr. Leis is survived by his wife, Lillian R. Leis, and six children, Kathryn Leis Davies, Zoe Leis, Edmund R. Leis, George K. Leis, Tracy F. Leis and S. Frank Leis.

The deceased joined the American Pharmaceutical Association in 1869.

SOCIETIES AND COLLEGES.

THE CHICAGO MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The Chairmen of the different Sections of the A. Ph. A. report progress but at this writing are not ready to submit programs. The list of Section officers was printed in the June issue of the *JOURNAL*, page 569, and will be convenient for those who have papers in preparation.

Chairman C. B. Jordan reports the following papers for the Section on Education and Legislation:

"Is Research Work along Lines Suggested by the Last Revision of the U. S. P. Possible and Practical in Schools of Pharmacy?"—C. S. Chase.

"What is the Meaning of a Degree in Pharmacy?"—L. E. Sayre.

"Coöperation between State Medical and Pharmaceutical Boards. Joint Control over the Preparation, Distribution, Purity Sales of Drugs."—F. E. Stewart.

"Is the Exclusive Ownership and Use of Coined Names for Chemicals, Drugs, and Their Preparations Objectionable and Should It Be Subject to Limitations and Restrictions?"—F. E. Stewart.

"What Should Be the Attitude of the Profession toward Further Restriction in the Sale and Use of Alcohol?"—Herbert W. Emerson.

"Publication of Potent Drug Content in All Ready-Made Medicine. Is it Desirable?"—Oscar Dowling.

"Instruction of Pharmacists for War."—Caswell A. Mayo.

"Health Insurance Legislation."—J. H. Beal.

"Plant Chemistry."—Nellie Wakeman.

Secretary Hugo Kantrowitz reports that Edward Kremers, William B. Day, F. W. Nitardy, Frederick J. Wulling and W. W. Figgis have promised papers. And also the acceptance of the following:

"The Etymological Derivations of the Word 'Drug.'"—W. O. Richtman.

"The History of Arsenical Preparations."—H. A. Langenhan.

Reports indicate a very good attendance for the Chicago meeting.

AMERICAN MEDICAL ASSOCIATION MEETING.

The sixty-ninth annual meeting of the American Medical Association was held in Chicago during the week of June 10. Certainly this meeting was the most important convention ever held by any organization in this country. It would be idle attempt to even briefly summarize the transactions; however, we reproduce the closing paragraph of a retrospect in the *Journal of the A. M. A.*:

"The attendance at this session was the largest since the Chicago session of 1908. The total, 5,553, is but a meager 800 less than that of the 1908 session, and when one takes into consideration the fact that about 20,000 physicians are in active military service, that the services of many physicians are con-

tinuously needed by civilian communities and industrial institutions, and that railroad rates are comparatively higher than they have ever before been in the history of our country, the attendance at this session may well be said to have been phenomenal. No meeting of the Association has so successfully reached the public as did this sixty-ninth annual session, and the public showed its interest in the session and in the work which the medical profession is trying to accomplish, by attending in large numbers every meeting in which arrangements had been made for it."



MAJOR ALEXANDER LAMBERT, M. R. C.,
U. S. ARMY.

President-elect of the American Medical Association.

The Committee on Scientific Research has been reestablished and as newly constituted consists of: Dr. Ludvig Hektoen, Professor of Pathology at Rush Medical College, Chicago; Dr. G. N. Stewart, Professor of Experimental Medicine, Western Reserve University, Cleveland; Dr. A. W. Hewlett, Professor of Medicine, Leland Stanford Jr. University, Berkeley, Calif.; Col. F. F. Russell, Surgeon General's Office, Washington, D. C.; J. W. Churchman, Professor of Surgery, Yale University, New Haven, Conn.; and Herbert Charles Moffit, Dean and Professor of Medicine, University of California Medical School.

NATIONAL PHARMACEUTICAL SERVICE ASSOCIATION ELECTS OFFICERS.

The June meeting of the National Pharmaceutical Service Association, which was also the annual meeting of that body, was held at the Philadelphia College of Pharmacy, June 11th.

The chief features of the meeting were the reports of the officers. President Beringer reviewed the efforts of the Association in the drafting of the Edmonds Bill and having it introduced, and made a plea for greater coöperation on the part of pharmaceutical bodies generally, in making the movement for the Pharmaceutical Corps a success.

Secretary Robt. P. Fischelis reviewed the propaganda work that had been carried on during the year and announced that the membership now totaled about 1400. He earnestly requested the Association to relieve him from the duties of the secretaryship because of pressure of business and other association work.

All of the officers were given a vote of thanks for their efforts during the year and the following were elected to serve for the term of 1918-19:

President, George M. Beringer; *Vice-President*, Charles H. LaWall; *Secretary*, E. Fullerton Cook; *Treasurer*, Josiah C. Peacock; *Executive Committee*, Joseph W. England, Philadelphia; C. A. Mayo, New York; Eugene G. Eberle, Philadelphia; Samuel C. Henry, Chicago; Louis Werner, Cincinnati; Ambrose Hunsberger, Philadelphia; Robert P. Fischelis, Philadelphia; F. E. Stewart, Philadelphia; William D. Robinson, Philadelphia.

Communications regarding the work of the Association and applications for membership should be addressed to Prof. E. Fullerton Cook, Secretary, at 145 North Tenth Street, Philadelphia.

STATE PHARMACEUTICAL ASSOCIATION MEETINGS.

The State Associations so far convened report larger attendances than expected. This is highly gratifying and proves an awakening interest, for it must be admitted that the item of help seriously interferes with vacation days for proprietors. The associations have endorsed the Edmonds Bill and also passed favorable resolutions, and now contemplate a campaign among citizens in behalf of such

provision in the U. S. Army. Legislative matters and tax measures were freely discussed, and there is no doubt relative to the opportunities afforded. The plans for federating the drug industries received attention in nearly all of these organizations. A general conference to discuss the plans will be held in Chicago, August 10.

STATE PHARMACEUTICAL ASSOCIATION.

OFFICERS FOR 1918-1919.

ILLINOIS.

President, Frank J. Dubsy, Chicago.

First Vice-President, John C. Wheatcroft, Grayville.

Second Vice-President, W. J. Clancy, LaSalle.

Third Vice-President, Ad Umenhofer, Chicago.

Secretary, W. B. Day, Chicago.

Treasurer, Chris Garver, Bloomington.

Peoria was selected for the next place of meeting, June 17-20, 1919.

KENTUCKY.

President, R. S. Berrymann, Versailles.

First Vice-President, W. J. Wilson, Mayfield.

Second Vice-President, Charles Laudier, Ashland.

Third Vice-President, T. J. Brockman, Fredonia.

Secretary, J. W. Gayle, Frankfort.

Treasurer, Vernon Driskell, Carrollton.

Place for next meeting not selected.

KANSAS.

President, W. E. Sheriff, Ellsworth.

Vice-President, J. A. Searcy, Leavenworth.

Secretary, D. F. Deem, Stark.

Treasurer, John Schmitter, Gypsum.

MARYLAND.

President, W. H. Clarke, Pocomoke City.

First Vice-President, D. R. Millard, Baltimore.

Second Vice-President, G. E. Pearse, Frostburg.

Third Vice-President, R. E. L. Williamson, Baltimore.

Secretary, E. F. Kelly, Baltimore.

Treasurer, Samuel Y. Harris, Baltimore.

Executive Committee, C. C. Neal, Baltimore; E. W. Hodson, Baltimore; G. A. Bunting, Baltimore; C. R. Holtzman, Cumberland; H. W. Eakle, Hagerstown.

MISSOURI.

President, Minnie M. Whitney, Kansas City.

First Vice-President, A. C. Smith, Carrollton.

Second Vice-President, C. H. McDonald, Rocky Comfort.

Third Vice-President, W. R. Scheldrup, Pierce City.

Secretary, H. M. Whelpley, St. Louis.

Treasurer, Wm. Mittelbach, Boonville.

Assistant Secretary, C. E. Zinn, Kansas City.

Council, H. D. Llewellyn.

Chairman, A. M. Howard.

Vice-Chairman, D. V. Whitney.

Secretary, Otto F. Claus, St. Louis; W. E. Bard, Sedalia.

NEBRASKA.

President, J. Earle Harper, Spencer.

First Vice-President, Tresa St. Martin, Wahoo.

Second Vice-President, J. W. Bushnell.

Third Vice-President, Miss Elsie Day, Lincoln.

Fourth Vice-President, A. E. Carlson, Dannebrog.

Fifth Vice-President, Neil Dodge, Hickman.

Secretary, J. G. McBride, University Place.

Treasurer, D. D. Adams, Nehawko.

NORTH CAROLINA.

President, S. E. Welfare, Winston-Salem.

Vice-Presidents, G. R. Pilkington, Pittsboro; E. E. Missildine, Tryon; I. W. Rose, Rocky Mount.

Secretary-Treasurer, J. G. Beard, Chapel Hill.

Member Board of Pharmacy, F. W. Hancock, Oxford.

Local Secretary, R. R. Bellamy, Wilmington.

Wilmington was selected as the next meeting place.

OFFICERS NATIONAL DRUG CLERKS ASSOCIATION 1918-1919.

President, Henry J. Steining, Lafayette, Ind.

First Vice-President, Frederick J. Killalee, St. Louis, Mo.

Second Vice-President, James K. Wunsch, Chicago, Ill.

Third Vice-President, Marvin E. Pate, Madisonville, Ky.

Secretary-Treasurer, P. A. Mandabach, Chicago, Ill.

Councilor-at-Law, R. A. Cavanagh, Chicago, Ill.

Consulting Attorney, Cline C. Brosius, Chicago, Ill.

Corresponding attorneys in every state of the Union. Paul J. Mandabach, National Editor and Director of Publicity.

THE PHARMACIST AND THE LAW.

WAR EXCISE TAXES.

Attention is called to the following articles because they may be overlooked in rendering taxes.

ART. XIX. *Medicinal preparations*.—The tax is 2 percent of the price for which pills, tablets, powders, tinctures, troches or lozenges, sirups, medicinal cordials or bitters, anodynes, tonics, plasters, liniments, salves, ointments, pastes, drops, waters, essences, spirits, oils, and all medicinal preparations, compounds or compositions whatsoever, are sold by the manufacturer; provided that

(1) The manufacturer claims to have any private formula, secret or occult art for making or preparing them; or

(2) The manufacturer has or claims to have any exclusive right or title to making or preparing them; or

(3) They are prepared, uttered, vended, or exposed for sale under any letters patent or trade-mark; or

(4) They are held out or recommended to the public by the makers, venders, or proprietors thereof, either (a) as proprietary medicines or medicinal proprietary articles or preparations, or (b) as remedies or specifics for any disease or affection whatever affecting the human or animal body.

ART. XX. *Medicinal preparations: Scope of tax*.—Every medicinal preparation, compound, or composition which is embraced within one or more of subdivisions (1), (2), (3) and (4) in the preceding article is subject to the tax. If, for instance, an article is made or prepared by a manufacturer claiming to have a private formula, secret or occult art for it, it is taxable, even though it is not prepared, uttered, vended, or exposed for sale under any letters patent or trade-mark, and it is not held out or recommended to the public as a proprietary medicine or medicinal proprietary article or preparation or as a remedy or specific for any disease or affection of the human or animal body. Preparations made in accordance with formulas contained in the United States Pharmacopoeia and National Formulary by pharmaceutical manufacturers, when not held out or recommended as proprietary medicines or medicinal proprietary articles or preparations, or as remedies or specifics, are not subject to the tax; but if so held out or recommended they are taxable, although not identified by any name, trade-mark, or otherwise.

ART. XXI. *Medicinal preparations: Who is a "manufacturer?"*—Within the meaning of this subdivision a manufacturer or producer is a person who prepares an article or has it prepared and sells it, and who identifies the article by a commercial name, trade-mark, or trade name, or by other means, or holds out or recommends the article as a proprietary medicine or medicinal proprietary article or preparation, or as a remedy or specific. If the article or its container has on it both a trade-mark or trade name of one manufacturer and the individual or business name of another, the owner of the trade-mark or trade name will be deemed the manufacturer. If the article or its container has on it both the commercial name of the article and an individual or business name, the latter will be deemed to designate the manufacturer. A person who is employed to make an article and receives for it the cost of materials and labor, plus a specified profit, shall be considered a manufacturing agent, and the person who procures the preparation of the article will be considered the manufacturer. Where the owner of a formula contracts with a manufacturer to prepare an article according to such formula and to deliver it to him in complete, salable form, the labels bearing the formula owner's name, he is considered the manufacturer. A person who bottles or otherwise prepares an article, and merely for advertising purposes places on such article the name of any dealer who may handle it, shall be deemed the manufacturer if the names of both persons appear, but if only the dealer's name appears he shall be deemed the manufacturer. "Held out or recommended" includes representation by any means, personal canvas and statements on the labels, in pamphlets and in advertisements, or otherwise. A holding out or recommendation intended for physicians only is a holding out to the public.

ART. XXII. *Medicinal preparations: Articles included*.—The word "medicinal" is applicable to any substance adapted to cure or alleviate disease or pain. Accordingly, a medicinal preparation is a preparation of any substance whatever intended to be applied for the cure or mitigation of pain or disease. Many articles or substances which are not usually considered as belonging to materia medica may become taxable medicinal preparations by being held out or advertised as remedies for diseases affecting the human or

animal body. Boric acid when sold under a trade-mark as a medicinal preparation is taxable.

ART. XXVI. *Return of tax on commodities.*
—Each manufacturer of any of the articles hereinabove enumerated must make monthly returns under oath in duplicate and pay the taxes imposed on such articles to the collector of internal revenue for the district in which his principal place of business is located. The returns shall be made on Form 728. Instructions for preparing will be found on the back of the form. The returns are to be rendered and the tax paid on or before the last day of each month covering the transactions of the preceding month, the first return

to cover all transactions since October 3, 1917. Where articles are sold over a period of time under an agreement for a quantity rebate, the tax, if originally computed on the gross price, may be adjusted in the return for the month in which the price is finally determined. Branch houses should in general make reports to the parent house, which is liable to make monthly returns of the sales of the branch house. An itinerant manufacturer should make return and pay the tax to the collector of the district where the sales are made. The books of every person liable to the tax shall be open at all times for inspection by examining internal revenue officers.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus.

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From 2342 Albion Place, St. Louis, Mo.

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

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From 721 Huntington Ave., Boston, Mass.

To Box 94, N. Rochester, New Hampshire.

McGOGY, J. F.

From 6219 12th Ave., N. E., Seattle, Washington.

To 1015 E. 55th St., Seattle, Washington.

GROSS, E. O.

From Albia, Iowa, care G. D. Miller.

To Elma, Iowa.

KING, G. A. N.

From Twin City Drug Mills, Minneapolis, Minnesota.

To 2631 Emerson South, Minneapolis, Minnesota.

MERNER, P. M. P.

From Cedar Falls, Iowa.

To 89 Auburn Ave., Sierra Madre, Cal.

BOTKIN, R. J.

From Residence unknown.

To 138 W. 31st, Bayonne, New Jersey.

BERGER, E. R.

From Residence unknown.

To Odebolt, Iowa.

ELLIOTT, C. S.

From Residence unknown.

To Base Hospital, Camp Grant, Rockford, Illinois.

BRACONIER, F. G.

From 1145 Main St., Campello, Massachusetts.

To U. S. S. Wilhelmina, Brooklyn, New York.

MOORE, M. S.

From 308 W. Chestnut St., Albion, Michigan.

To 320 W. Lapeer St., Lansing, Michigan.

STOUT, M. A.

From Peoples Gas Bldg., No. 1213, Chicago, Ill.

To Bluffton, Indiana.

HOFFMAN, E. S.

From 138 Linden St., Allentown, Pennsylvania.

To 3238 Chestnut St., Philadelphia, Pennsylvania.

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From 5 Salem St., Newark, New Jersey.

To Maplewood, New Jersey.

BECKER, M.

From Wyne Hotel, Denver, Colorado.
To 2214 E. 35th, Kansas City, Missouri.

COUSSENS, B. P.

From 5125 Von Verson Ave., St. Louis, Mo.
To 5847 Delmar Ave., St. Louis, Mo.

REINER, N. T.

From 1 Westminster Pl., Providence, Rhode Island.
To 25 Westminster Pl., Box 1286, Providence, Rhode Island.

Winski, F. B.

From 1637 Warren Ave., Chicago, Illinois.
To 34 Woodland Pl., Stamford, Connecticut.

HENRY, S. C.

From 122 S. Michigan Ave., Chicago, Ill.
To 168 N. Michigan Ave., Chicago, Illinois.

HELFMAN, JOS.

From Parke, Davis Co., Detroit, Michigan.
To Hotel Vista del Arroyo, Pasadena, Cal.

HUMMA, H. H.

From 2431 S. Dearborn St., Chicago, Ill.
To Metropolis, Illinois.

ROON, LEO.

From Elmhurst, Long Island, New York.
To 23 Vine St., c/o E. R. Squibb & Sons, Brooklyn, New York.

BEACH, D. C.

From 87 Columbia Hts., Brooklyn, New York.
To 570 Jefferson Ave., Brooklyn, New York.

McDIARMID, D. P.

From 371 East St., Talladega, Alabama.
To 1430 1/2 11th Ave., S., Birmingham, Alabama.

ZELUFF, I. S.

From 743 Ocean View Ave., Woodhaven, Long Island, N. Y.
To Farmers Ave., Hollis, Long Island.

HILTEBRAND, E. A.

From 1014 W. 18th St., Oklahoma City, Okla.
To 4011 Colonial Ave., Dallas, Texas.

PRT. NORTH, H. H.

From Medical Dept. Exam. Bldg., Ft. Slocum, New York.
To U. S. A. General Hospital, No. 7, Roland Park, Baltimore, Maryland.

RESIDENCE UNKNOWN.

COOLBAUGH, L. E.

From Old Corner Drug Store, Waco, Texas.
To Residence unknown.

ALLANDE, A. J.

From Hammond, La.
To Residence unknown.

STEWART, H. E.

From Jacksonville, Fla.
To Residence unknown.

HERRON, CHAS. S.

From 141 N. 15th St., Philadelphia, Pa.
To Residence unknown.

DECEASED.

FACK, RUDOLPH

1626 Sycamore St., Cincinnati, Ohio.

JACKMAN, W. F.

Detroit, Michigan.

UNITED STATES PUBLIC HEALTH SERVICE.

List of Changes of Duties and Stations of Commissioned and Other Officers of the United States Public Health Service for the days ended June 12, 1918.

Pharmacist J. A. Wolfe. Relieved at the Marine Hospital, Stapleton, New York. Proceeded to Washington, D. C., for temporary duty. June 1, 1918.

Sanitary Engr. H. R. Crohurst. Proceeded to Wichita Falls, Texas, for conference regarding water supply at the Aviation Camp. June 3, 1918.

Sanitary Engr. H. W. Streeter. Proceeded to Portsmouth, N. H., for consideration of plans for securing a safe water supply for that city. June 1, 1918.

Prof. C. W. Stiles. Proceeded to necessary points in the State of Georgia for conference

regarding venereal disease control. May 20, 1918.

Pharmacist F. L. Brown. Proceeded to Baltimore Quarantine Station for temporary duty. On completion of duty rejoined station at Philadelphia, Pa. May 29, 1918.

Pharmacologist Julius Stieglitz. Proceeded to New York and Philadelphia via Washington, for investigation of methods of manufacturing arsphenamine. May 23, 1918.

Pharmacist T. V. O'Gorman. Relieved at Marine Hospital, Port Townsend, Wash. Report at Quarantine Station for duty. June 4, 1918.

Bacteriologist Nathan Berman. Proceeded to Chattanooga, Tenn., for duty in connection with sanitation of extra-cantonment areas. June 7, 1918.

Bacteriologist E. D. Reynolds. Relieved at Macon, Ga. Proceed to Greenville, S. C., on special temporary duty. June 11, 1918.

Scientific Asst. W. H. Price. Proceed to Little Rock, Ark., on temporary duty. June 10, 1918.

Sanitary Inspector E. J. McLaughlin. Relieved at Petersburg, Va. Proceed to Englewood, N. J., on special temporary duty. June 11, 1918.

Sanitary Inspector W. F. Purrington. Relieved at Spartanburg, S. C. Proceed to Portsmouth, N. H., on special temporary duty. June 11, 1918.

PROMOTIONS.

Pharmacist John H. Hayes. Promoted and appointed a Pharmacist of the Second Class, effective March 18, 1918. May 23, 1918.

BOOK NOTICES AND REVIEWS.

Annual Reports of the Chemical Laboratory of the American Medical Association for 1917. Paper. Price, postpaid, 25 cents. Pp. 140. Chicago: American Medical Association, 1918.

This, the tenth volume of the Reports of the A. M. A. Chemical Laboratory, presents the portions of the Laboratory's work carried out during 1917 which it was thought would be of interest to those concerned with the analysis of drugs. Like the preceding volumes it gives not only the results of the examination of many proprietary preparations but also the methods of analysis employed. The latter feature makes the publication most helpful to drug analysts, pharmacists and others interested in pharmaceutical chemistry.

The following is a list of the subjects treated: Note on the Determination of Boric Acid by Titration in the Presence of Glycerol; Some Color Reactions Obtained from the Extract of *Acer Spicatum* (False *Viburnum Opulus*, *Viburnum Opulus* U. S. P. VIII); Wheeler's Tissue Phosphates; "Ambrine" and Paraffin Films; The Stability of Iodine Ointments; The J. B. L. Cascade Treatment; Brom-I-Phos; Low's Worm Syrup; Dr. Pierce's Anuric Tablets; Zirato; "Haines Golden Treatment;" Venosal; Surgodine; Commercial Pelletierine Tannate; "Byron Barber's Pneumonia Specific;" Standards for Beta-naphthyl Benzoate; Elixir Novo-Rexamine (Upsher Smith); "Freeze-Proof;" Dr. Hand's Worm Elixir for Children; Iodeol and Iodagol; Iodolene and the Solubility of Iodin in Liquid Petrolatum; Kar-Ru; Magnesium Acid Citrate—"Citrsia;" Mineral Salts and Stuart's Calcium Wafer Compound.

This volume very appropriately also contains a collective index to the ten volumes so far issued. The index gives not only the titles of the many preparations and compounds examined since the organization of the Laboratory but also a key to the methods of determining the constituents of the prepara-

tions analyzed. Thus, a reference in the index states how boric acid was determined in the following preparations: Alcola, Berledets, Collyrium Wyeth, Crystos, Kora-Konia, Micajah's Uterine Wafers, Mrs. Price's Caning Compound, O-Do-Cure, Oxychlorine and Zyme-Oid. This feature should be of much help to analysts called on to examine complex drug preparations.

PUBLICATIONS RECEIVED.

The Supplement to the United States Naval Medical Bulletin, April 1918, published for the information of The Hospital Corps of the Navy.—Issued by The Bureau of Medicine and Surgery, Navy Department. Division of Publications, Medical Inspector J. S. Taylor, United States Navy, in charge. Edited by Past Assistant Surgeon G. F. Cottle, United States Navy.

Sixteenth Annual Report of the Board of Pharmacy of the State of New Jersey.—October 31, 1917.

Directory of Registered Pharmacists and Registered Assistant Pharmacists of the State of New Jersey.—Also containing the Pharmacy Law of the State and the Rules of the Board for its Enforcement. Issued September 1917, by the New Jersey Board of Pharmacy.

In Memoriam, Prof. Joseph Price Remington, being a reprint from the *American Journal of Pharmacy*, February 1918. The booklet is neatly printed and the frontispiece exceptionally good, and of a photograph that presents a speaking likeness of this honored pharmacist as he appeared among us several years ago.

University Bulletin University of Michigan.—*College of Pharmacy Bulletin* of the Philadelphia—College of Pharmacy and Alumni report.

Supplement to Bulletin Buffalo College of Pharmacy.

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, \$4.00; Canada, \$4.35; foreign countries, \$4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION 211 Church St., Easton, Pa., or 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

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Advertisements: Communications relating to advertising should be sent to the Editor. Forms close on the first of each month, and copy should be in by the fifteenth of the month preceding date of issue, to receive proof. Date of issue—the fifteenth of the month. Advertising rates sent on request.

Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the JOURNAL. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

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Secretary of the Council—J. W. England, 415 North Thirty-third St., Philadelphia, Pa.

* Deceased November 19, 1917.

† Deceased June 30, 1918.

CLARENCE OTIS BIGELOW
NEW YORK, N. Y.

Member New York Board of Pharmacy



CLARENCE O. FIEGLOW

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JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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AUGUST, 1918

NO. 8

CLARENCE O. BIGELOW.

Despite his varied activities—financial, educational and commercial—Clarence O. Bigelow is primarily a retail pharmacist. Recently, it was the privilege of his friends to honor him on the occasion of the fiftieth anniversary of his entrance into retail pharmacy. It is now almost forty years since he purchased the drug store that he has conducted with such great success ever since. Honors, civic and social, have been thrust upon him; financial reward has come to him in goodly measure, and yet, with opportunities for other avocations, his real vocation is the conducting of a high grade pharmacy, that is neither ultra-professional nor crassly commercial.

Mr. Bigelow is a native of Phenix, R. I. but he obtained his early education and his first year of drug store experience in Springfield, Mass. In 1867, he sought his fortune in New York, securing a position with G. L. Hooper. In 1870, he attended the New York College of Pharmacy, became a registered pharmacist and ten years later purchased the business founded in 1838 by Dr. Galen Hunter. This business, he has conducted with marked success. Down in the old Washington Square district, he has inspired the confidence of the choicest residents of that aristocratic quarter. He now occupies a handsome building of his own and employs a staff of over thirty persons.

As is true of all really successful men, Mr. Bigelow has found time for outside activities. He is a member of a number of clubs; he is the president of the West Side Savings Bank and has been one of its trustees for over twenty-five years; he has been a member of the American Pharmaceutical Association since 1900 and was president of its New York branch during 1912-13. He has been a member of the New York State Pharmaceutical Association since 1898 and was a member of the committee that compiled the present edition of the National Pharmaceutical Syllabus.

But Mr. Bigelow's greatest service to Pharmacy has come from his work on the New York Board of Pharmacy and as treasurer of the New York College of Pharmacy. For fifteen years, he gave his splendid administrative talents first to the New York City Board and then, upon its organization to the all-State board. In the first critical years of that great body, he gave it the benefit of his ripe judgment and of his executive experience. His work for the New York College cannot be told in a brief sketch. He has given it his time, his thought and his aid. He has guided it as treasurer through many difficulties. He has so husbanded its finances, that it is now in a more flourishing condition than ever before in its history.

H. V. ARNY.

EDITORIAL

E. G. EBERLE, Editor

253 Bourse Bldg., PHILADELPHIA

THE CHICAGO MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE Sixty-Sixth annual meeting of the American Pharmaceutical Association is being held in Chicago this week, hence it is impossible to report on the transactions. The address of President A. R. L. Dohme, however, is printed in this number of the JOURNAL, but prior to the report of the Committee on the President's address and the action of the Association thereon. His views, comments and recommendations are therefore to be considered with the forthcoming report and action of the Association relative thereto. The minutes will be printed in the succeeding issue of the JOURNAL.

The various Sections provided excellent programs; many of the papers were prompted by the conditions brought about by the war, thus, the Scientific Section had among quite a number of other important contributions an illustrated lecture on "The Effects of War on Drug Cultivation;" a series of papers on the problems confronting the chemical and pharmaceutical manufacturers on account of the war conditions, and how these affect the retail pharmacists. The Women's Section arranged for a lecture on conservation. The program of the Section on Education and Legislation was outlined in the July issue; several papers on educational subjects were added. Both the Section on Practical Pharmacy and on Commercial Interests had exceedingly interesting programs and evidenced the careful study of the officers to make the sessions instructive and valuable for the retail pharmacists; in fact, the purposes of all the Sections were kept in mind and seldom have the papers better indicated the coöperative interrelation of all the work of the Association in the interest of pharmacists. The contributions of the Section on Historical Pharmacy not only recorded past events but applied the lessons for the present and future. So this much may be said, the work of this convention clearly evidenced that the American Pharmaceutical Association fully comprehends its mission for pharmacy and pharmacists and the reports and papers should convince all pharmacists and persuade them to affiliate and coöperate. As a result of the work done in Chicago the succeeding numbers of the JOURNAL will have value far in excess of the annual membership fee in the Association for every pharmacist.

E. G. E.

ADDRESS OF THE PRESIDENT OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.*

A. R. L. DOHME.

Fellow Members of the American Pharmaceutical Association:

For the first time in the history of this association your duly elected and installed president has not presided at your next annual meeting and for the first time in consequence your duly elected First Vice-President has assumed the mantle and responsibilities of that high and important office. I know how much you all loved Charles Holzhauser, whose untimely death has made it possible for me to be addressing you from this chair. I need not attempt to portray the many endearing sterling noble qualities nor the unfailing high principles which enabled him to make such a great success of his chosen calling—pharmacy—for you knew him as well as I did. He was well worthy of the great honor you bestowed upon him in electing him your president for he loved the American Pharmaceutical Association as he loved his own child and he was fully as faithful to the one as he has shown himself to be to the other.

What a blessing it was, friends, that you did him the honor to elect him and thus enable him to fulfil one of his highest if not his highest ambition—president of the A. Ph. A.—before his death. Little did I dream when my good friend, John B. Thomas, nominated me to be your vice-president that I should ever have the honor and the privilege of appearing before you as your president. There is one thing I have found out after the death of President Holzhauser and that



A. R. L. DOHME

pharmacy. Several other past presidents have in a general way voiced the same sentiment. What more natural inference can be drawn than that I should as the representative of your duly elected president endeavor to carry out the ideas and purposes for the betterment of pharmacy that were uppermost in his mind. Especially is this true if entirely independent of what anyone else may have thought upon the subject, I had come to the conclusion that all other subjects or topics affecting the A. Ph. A. were secondary in importance and would later follow as a consequence to a federation of all pharmaceutical associations and interests in one large powerful efficient centrally and permanently managed association. But I will come back to this paramount subject later.

We meet here to-day in the great metropolis of the west—Chicago—growing so rapidly and extensively and progressing so thoroughly and amazingly that one can hardly recognize it between visits. To congratulate Chicago is like

was that the great subject he hoped to try to realize and accomplish during his term of office was federated pharmacy. The vision so beautifully drawn and so splendidly presented by his predecessor in office, Dean Wulling, had made a deep impression upon his mind and heart. He felt as a good practical successful man that it was the fundamental problem to be solved for pharmacy if pharmacy hoped to better her condition and his beloved A. Ph. A. come into her own as the dear old Alma Mater of all American

* Presented at First General Session of the Sixty-Sixth Annual Convention of the American Pharmaceutical Association, Chicago, Ill., August 13, 1918.

trying to paint the lily—wholly superfluous and as surely ineffectual because Chicago is congratulating herself daily by daily achieving great accomplishments and advances. This Association has met here twice before in its history, once in 1869 under the presidency of Edward Parrish and again in 1893 at the time of the Great Columbian Exposition under the presidency of Joseph P. Remington. It almost seems necessary when we meet in this center of energy and progressiveness that we must do something momentous in our own history and so it seems destined to be. Federation may have been conceived and heralded elsewhere but it is apparently the general hope and wish that it shall be born on the shores of Lake Michigan.

This is neither the time nor the place, nor am I the one, to criticize our association or any of its methods or activities. I am glad to be able to state that all of your officers, committees, editor, chairmen of committees and all connected with your Association have done all they could be expected to do and have accomplished all they could be expected to accomplish under the conditions and limitations imposed upon them by a divided pharmacy and a limited treasury resulting from almost a minimum of membership. Even if I wished to criticize any one, any branch of our organization, any method we employ in our work I could not conscientiously do it, because every one has done his full duty by our Association and deserves well of it at your hands. The trouble which confronts us and which prevents our doing what our Association should and could accomplish is not to be laid at the door of any officer, committee or other agency of the Association. It is the inevitable result of the system and conditions under which pharmacy and its many agents exist in this country. Can the A. Ph. A., I submit, do any real service for its 50,000 votaries in this country with a membership of 2700? Does its "say so," its voice represent any strength or any power when it arises from only about five percent of its representatives? Was there ever a time and can you possibly conceive of a condition when 5 percent could sway 95 percent or even presume to voice their sentiments? Every president since the very early years of the 66 years old A. Ph. A. has appealed seriously and loudly for an increased membership and many of them have devised plans and some of them carried out plans for enlarging our membership, realizing that the income derived from 2700 members will not enable the Association to give *quid pro quo* to its members for membership dues. All progress from our present and past status and influence and power, must, as I see it, depend upon our merging our interests with the interests of all other national and state pharmaceutical associations, all of which are more or less in the same standstill position as we are, and from the time this occurs and this great achievement of federation is an accomplished fact, will our real ability to give more than a full *quid pro quo* be made possible. Why not then cease trying to temporize or busy ourselves with minor changes or details of organization and management and concentrate our efforts upon accomplishing federation of pharmacy? It has hence seemed to me, after a great deal of study of our Association's history and its present condition and its probable future under present conditions, that I must, if I am true to myself and wish to live up to my convictions, throw all my thought, energy and soul into a concentrated effort to make federation of pharmacy a reality and a living thing. To this end I named a committee upon federated pharmacy as called for by the resolutions resulting from the report of the committee upon President Wulling's annual address at Indianapolis, of which my dear friend, Prof. H. V. Arny, is chairman and from whom you will hear much of interest during the course of this meeting. However, before giving you my reasons for reaching this conclusion and my ideas of how it may be accomplished, permit me to pass in review a few other questions pertaining to pharmacy that have come to my attention during the past year.

PHARMACY CORPS IN THE ARMY.

It has been the aim of this Association for many years to secure recognition

for the pharmacists in the government service as you all know. Formerly in times of peace this was desirable but not essential. Its desirability then was based upon the fact that our profession, which we appreciate is the left hand of medicine if we may call the diagnosis of disease and the prescribing of the necessary medicine the right hand, was not recognized as worthy of any rank in the government service whereas its sister profession of medicine stood at the very top of rank in that service, the surgeon-general of the army holding the rank of major-general. Certainly if the right hand is worthy of the high rank of major-general the left hand of the healing of the sick is worthy of the rank of a captain or a lieutenant. Practically all the leading countries of the world realize and appreciate this and grant some recognition and consequent rank to their pharmacists in their government service.

But now when we are engaged in the most terrible and destructive and extensive war of all times and millions of our men are exposed to disease and injury and the left hand is almost as much needed daily as the right hand and the man who wields the left hand should have some standing and rank and consequent self-respect over and above just a kitchen-detective, a harrier or a hostler. Our army as at present constituted has a medical corps, a veterinary corps, a dental corps, an ambulance corps, a sanitary corps and a chemical division but no pharmacy corps. In order to get some idea of what was the nature of the pharmaceutical service in the army, our committee on the status of pharmacy in the army and navy sent out questionnaires to the several camps and cantonments in this country. How deplorable this service is the report of that committee through its chairman, Mr. Hilton, will make plain to you. It is practically no service in pharmacy at all that our boys who are giving their lives and their health for their country are receiving. A bill to give the country the needed pharmaceutical service and enable the pharmacist, who has had a college course and graduated in pharmacy, to occupy a position of self-respect and rank somewhat commensurate with the education and importance in the work of healing the sick was introduced by a pharmacist, Mr. Edmonds of Pennsylvania; and a hearing was had before the House Military Committee on that bill, and the room was crowded with representative members of the profession and of this association. All to no avail—for the surgeon-general, Dr. Gorgas, is opposed to a Pharmacy Corps in the army and until he undergoes a change of heart we were practically told it is useless to attempt to pass such a bill. All efforts to convince him or to change his view have been futile. His position is that present method and service are sufficient to handle the situation. When we consider that our Continental Army in 1776 recognized pharmacists and gave them rank, it seems that something must have gone wrong in the progress of pharmacy when a century and a half later we find ourselves less thought of in the government service than were the wielders of the mortars and pestles of Revolutionary days.

While we have allowed nothing to prevent our working as hard and earnestly as we could to secure recognition for pharmacy and while we believe the American Medical Association has not opposed recognition of pharmacy in the government service, if we can judge by their comments in their official journals, yet we have been unable to accomplish our purpose at this critical juncture in our country's history despite the fact that our object is the laudable and patriotic one of helping to give our soldiers the efficient service they undoubtedly need and need badly. Now there is a reason for this—there must be a distinct and radical reason why we cannot win recognition by our government. Doubtless many of you have your own idea of what this reason is. I know I have, and I am going to give it to you. Lack of united spirit and action of pharmaceutical bodies, *i. e.*, lack of federated pharmacy and a united front and spirit. There are too many viewpoints at variance with one another in our ten national pharmaceutical associations now existent and too much self-interest and jealous-mindedness among and between them. I can testify to this from my own experience since studying and corresponding upon this great question of federation.

THE FUNDS OF THE A. PH. A.

In studying these funds I have been convinced of their utopian rather than utilitarian purpose and effect. We have ten such funds whose aggregate principal sum as of January 1, 1918, amounted to \$67,831.47. These funds are:

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1 Life membership fund (interest from which is available for association expenses but has not been so used and is merely accumulating interest)..... | \$22,644.60 |
| 2 Centennial Fund (interest from which is available for defraying expenses of any member for a research work undertaken by him, very seldom availed of and mainly used in accumulating interest)..... | 3,057.68 |
| 3 Endowment Fund (not available until it reaches \$25,000 when half of its interest income is available, hence of no use for many years to come, possibly for our grandchildren)..... | 6,864.30 |
| 4 General Fund (no known object or purpose stated, merely capital invested and at a very low rate of interest)..... | 10,000.00 |
| 5 A. Ph. A. Research Fund (not available until it reaches the sum of \$100,000, when its interest becomes available. This will probably require about 20 years to become available)..... | 11,102.55 |
| 6 Ebert Legacy Fund (not available until it reaches \$10,000 when interest becomes available. This will require about 25 years and hence does not interest this generation)..... | 4,324.47 |
| 7 Ebert Prize Fund (interest available annually for prizes, otherwise interest added to principal)..... | 1,133.27 |
| 8 Procter Monument Fund (to construct a monument to Wm. Procter, Jr., which monument should have been erected some time ago)..... | 8,486.20 |
| 9 Rice Memorial Fund (no purpose, merely a remnant with a distinguished name attached)..... | 178.40 |
| 10 Motter Fund (this was an experiment that failed and should be consolidated with the Rice Memorial Fund)..... | 40.00 |

A study of these funds induces me to offer a suggestion regarding them. Only two or three of them, the Centennial Ebert and Procter Funds, have specific purposes and can be and are at times used for an intended purpose. Apparently all the rest are either mementos or provisions for the future bearing interest and be it said very small interest but serving practically no useful purpose. Those that are invested in bonds, except those invested this year in Liberty Bonds for patriotic purposes, might be better invested, for they return the minimum of interest. I would suggest that at the proper time they be reinvested in securities that are safe but yield a better interest return. As to the disposition of these funds I feel that it is high time they be taken in hand and be made to serve some real purpose to our Association other than earning savings bank interest. My suggestion for their use is based upon my belief in the adoption of federated pharmacy and in that connection I would use such of these funds as could by action of the Association be made available as to their principal sum to furnish and equip the proposed central offices and laboratories, etc., and make them available for the use of all the members of the federated association to be formed. They would then serve a very practical and useful purpose to all members, and when we have a successful federated association we will have enough income to supply all the needs for our expenses and will not then have occasion to provide for future contingencies, as is the case now with these funds.

PRESENTATION OF PAPERS AT SECTION MEETINGS.

It has been my experience and observation during the 27 years I have been a member of this Association that the average member in attendance upon our meetings has too much listening to do and too little opportunity to speak his mind. This is the result of our custom of having papers read in full by their

authors. My suggestion is that papers presented to sections be required whenever possible to be presented in abstract and not to occupy more than ten minutes for their presentation. This can be done by stating the purpose to be accomplished and the thought that led up to this, the method or arguments adduced to accomplish it and finally the actual results or conclusions reached. Then have the author or chairman open the discussion and endeavor to have as many members present participate in the discussion. By this means members will become more interested in the meetings and the proceedings will prove more interesting.

U. S. P. REVISION.

Since our last meeting the chairman of the Revision Committee, also one of our ex-presidents, Prof. Joseph Price Remington, has passed to the great beyond and the committee has elected his successor, Prof. Charles H. LaWall, our president-elect. These are important days for pharmacopoeia revision since so many of our drugs and chemicals formerly secured from abroad are now either not available at all or are being made in this country and hence require modification in regard to alternatives or standards. Our committee on U. S. P. revision should carefully consider this and make such recommendations as seem to them advisable.

HOUSE OF DELEGATES.

I feel that our state associations are in need of coöperation and harmonizing for various reasons. As a basis for improving the grade and quality of our future pharmacists, an uniform and generally adopted prerequisite law providing that only graduated pharmacists shall be licensed to practice pharmacy should be adopted by every state in this country. This can best and easiest be accomplished by either forming an association of state pharmaceutical associations or by making the present House of Delegates of the A. Ph. A. a state association body and thus accomplish the prerequisite uniformity and universality in the House of Delegates. In matters of legislation and state laws, in pure food and drug matters, narcotics, formula exposure, etc., etc., the action of all state associations in harmony and coöperation in the House of Delegates would be of service and value to all pharmacists if in no other way than by securing uniformity of constructive legislation and by practical enforcement of laws. An association of state associations has been suggested as a means of bringing this about and in the event that federation were accomplished and the House of Delegates became the main body of the federated association, then the organization thus affected could become a separate association with representation in the federated body similar to other national pharmaceutical associations.

IN MEMORIAM.

The year 1917-1918 has been unusually severe upon pharmacy in the loss of her influential men. First we lost our former general secretary of so many years, Charles Caspari, Jr., a man who was not only most representative of high ideals and broad views in pharmacy but who was perhaps the most unselfish representative of pharmacy in our ranks. Always doing things for some one else, never thinking of himself. What a wonderful memory to leave behind in the hearts of his friends! A wonderfully well posted man and a generally beloved man. When he said a thing or expounded an opinion it was sure to be just about one hundred percent correct. His services to this association can hardly be estimated or appraised for they cover so many branches of our work. Not only pharmacy but the world was a loser when the light of Charles Caspari, Jr. went out. I knew him well almost from the day I was born, for he was a clerk in my father's drug store and later I was an apprentice in his pharmacy. His were the admonishments of a man who, being permeated with a genuine love for his profession, instilled that love into all who came under his influence in any way. It was a privilege to be a pupil of Charles Caspari, Jr., and an asset worth much to its possessor through life. It will be many a day before we shall see his like again.

Charles Holzhauer realized the ambition and hope of his life when you honored him by electing him president of this Association and it is a genuine grief to me that he could not have lived until this day to stand here instead of myself to tell you what his many successful years of active life in pharmacy had enabled him to absorb for his and your benefit. He will go down into pharmaceutical history as a man who spent all his life in the practice of his chosen profession and beginning with nothing but determination, high ideals, sterling honesty and right dealing and living made a striking success of his life and his business. His life and career should be used as an example of what a young man can accomplish if he consistently carries out the highest principles of honesty and industriousness, persistence and high ideals. Would there more Charles Holzhauers in pharmacy to-day!

Joseph Price Remington—the hub around which the wheel of pharmacy has rolled for a generation. The man who received the torch of pharmacy from Parrish and Procter, first lighted by them in this country as a living profession and science, and who carried it successfully and ennobled it during almost fifty years. The man whose smile was the quintessence of optimism and who probably has taught more young men pharmacy than any other man in the history of pharmacy. The man who also carried the torch of American pharmacy out among the nations and made it known and respected. The man who took the great responsibility of editing the United States Pharmacopoeia from the hands of that remarkable genius, Charles Rice, and so maintained the high standard set by Doctor Rice that it has become to-day one of the great books of pharmacy in the world.

All three of these men represent milestones and oases on the high road of pharmaceutical progress and their loss all in one year will for a long time be felt by pharmacy. May I request that, due to their great prominence in their profession and the place in our hearts that has been made vacant by their death, we all rise in our seats as a tribute of love and respect to their memory.

Remington Honor Medal.—The New York Branch has, with consent of this Association, created a fund which will enable it to present annually a medal, in memory of Prof. Remington, to that person who has in the previous year done most to advance further pharmacy and the ex-presidents of this Association are to be the committee to award it.

Société de Chimie Industrielle.—A new association, the French Society of Chemical Industry, has been formed during the past year and sent greetings and a tender of exchange of journals to this association. It is one of the many instances of the rise of a new development as the result of this terrible war now devastating the earth. Like our own marvellous development of chemical industry in this country since the outbreak of the war, it has stepped into being to supply the need once supplied by the German Chemical Industry and, like ours, it will doubtless largely replace it after the war is over. It was my great pleasure and privilege to convey to this new association the greetings and good wishes for success of this Association.

PHARMACEUTICAL EDUCATION.

In order that pharmacy may attain to a position somewhat more approximate to medicine in influence and position than has been the case during the past quarter of a century several things seem necessary.

First: That the number of pharmacies and pharmacists be reduced and that the quality of both be raised. This would result in more pharmacies with better incomes for each and less corner drug stores and apothecary shops.

Second: That a prerequisite law be passed in every state in the United States, so that only graduated pharmacists be granted the license by the state to practice their profession in that state.

Third: That the entrance requirements to all schools of pharmacy in this country be made more rigid so that a recognized state high school diploma be made mandatory by all such schools of pharmacy for matriculation into them.

Fourth: That the courses of study leading to a degree in pharmacy be increased in number and extent, so that the degree will cover more than the usual subjects of chemistry, pharmacy and botany but include besides microscopy, pharmacognosy, materia medica and practical pharmacy and dispensing, also courses in ethics, psychology, physics, biology, geology, political economy, modern languages, advertising, accounting and merchandizing, so that the course will require at least three and preferably four years and when completed will be worthy of the degree of Doctor of Pharmacy and be commensurate with that of doctor of medicine, doctor of divinity, etc.

Fifth: That two degrees be offered by schools of pharmacy for a limited period after the inauguration of these changes in the curriculum of schools of pharmacy: one Ph.D. or graduate in pharmacy, granted after completion of a two years' course as heretofore and the other Ph.D. or doctor of pharmacy granted after completion of a three or four years' course as above outlined. After ten years, however, only the degree of Ph.D. be granted covering the completion of the full three or four years' course from October to June.

FEDERATION OF PHARMACY.

Having touched upon these several subjects, it now becomes my duty to bring before you my message and the real story I have to tell. In studying the history of this Association, I find that it was conceived in 1852 in a tolerant spirit of broad-minded consideration for the success and welfare of all branches of pharmacy. It was from its birth intended to be true to its name and be in fact the American Pharmaceutical Association—an association so broad and comprehensive as to include every branch and department of pharmacy in America. Both its sister associations, the American Medical Association and the American Chemical Society, have as you observe the same broad comprehensive names. At our meetings the teacher, retailer, manufacturer, wholesaler, broker, clerk, salesman-representative, editor, publisher, etc., etc., have always been welcome as members and have been accorded every opportunity to have their say and be heard. Without going into the details of our subsequent history or into that of our just mentioned sister associations, suffice it to say at this time that the A. Ph. A. finds itself to-day, after sixty-six years of sterling vigorous life devoted to the welfare and advancement of pharmacy in all its branches, in the unfortunate and unenviable position of having only 2700 members out of about 50,000 pharmacists in this country as compared with about 65,000 members of the A. M. A. out of about 150,000 physicians and 10,000 members of the American Chemical Society out of about 18,000 chemists in the country. Practically every president of this Association has, I find, dwelt at some length upon the importance of increasing our membership, and one of them wrote personally thousands of letters in an effort to personally accomplish this. All, however, to no purpose, for although new members are secured every year and one of our enthusiastic and devoted members even gets practically the whole graduating class of his college to join the A. Ph. A., yet the newly added members only about offset the losses by death, resignation and dropping for non-payment of dues during the year. This is a fundamental weakness of the A. Ph. A. and there must be a reason for it. No association can keep alive and efficient and progress if it does not secure and hold more than five percent of its available members. To my mind the reason is lucidly clear. The American Medical Association and the American Chemical Society secure and hold members in great number because they give an equivalent in real value and service to their members in return for the membership fee. All of you know that the journal alone of each of these two sister societies, without considering the real support, protection and service given their members in various ways, is more than an equivalent for their membership fee. Medical men highly esteem the journal of the A. M. A. and chemists could not do their work properly without the *Journal of Industrial and Engineering Chemistry* and the *Journal of the American Chemical Society*. Hence they join without much effort to secure them as members and they remain members when once they have joined the association. Comparisons are always odious and I hence refrain from a statement as to what our members secure in

return for their membership. I appreciate fully that our journal could not be better edited, and our Year Book is a valuable book for many members. Let me confine my remarks upon the two publications to these two statements: we have not enough income and means to make the journal better than it is and we have not enough circulation to make it a popular advertising medium to produce revenue; and our Year Book appears too late to make its contents news. No large national association with only 2700 members can produce a service for its members that justifies the payment of the dues. Our members are largely members out of love and respect for the grand old A. Ph. A. which has kept the fires of pharmaceutical science and ethics burning these past 66 years. But during these 66 years pharmacy has changed radically as a trade and profession. Has the A. Ph. A. appreciated that fact and acted upon it? Pharmacy is to-day more largely merchandizing than it was not only 66 years ago but as late as 20 years ago. The great advances in pharmacy are made in the research laboratories of the pharmaceutical and chemical manufacturers and due to the facilities of these laboratories in controlling and standardizing the strength of these products, the average retailer is not in a position, in most cases although he may desire to do so, to assay and assure himself of the proper quality of his goods. Besides this the successful stores, be they chain stores or not, carry many side-lines, and to be successful a pharmacist must be a capable merchandizer which means buy at the right time and price and know how to make inducements to customers to buy his goods. The day for the highly skilled pharmacist, who has a full line of the necessities for compounding prescriptions and a high standing in his profession that logically gives him the right to expect people to flock to his store for that reason to have their prescriptions compounded, is a thing of the past. It was because the A. Ph. A. failed to realize and appreciate this and act upon it that the N. A. R. D. was formed and its pronounced success as compared to the A. Ph. A. in number of members and consequent service rendered to its members is well known to you all.

"Let us Face the Facts" is the terse expression used by one of our most distinguished and highly esteemed ex-presidents for the growth of mercantile as against scientific pharmacy in the retail drug trade of to-day. To this I say Amen, and the way to "face the facts" most effectively is to bring about conditions in pharmacy that will not let the material side of pharmacy take the bit in its teeth and run away with the professional side, for then we will lose our ideals and our inspiration for progress in our profession; nor let the dreamers of the ideal pharmacy of the last century blind themselves and all of us against meeting the instruction and course of thought and state of mind necessary to meet the inroads of the chain store and drug department store. However, there is not room for both the A. Ph. A. and the N. A. R. D. if the maximum of service and the maximum of progress in the science of pharmacy are to be achieved. Both associations as now organized and conducted are working more or less at cross purposes and not in sympathy. They thus divide their influence, their strength, standing and their potentiality in half and when to this is added the separate activities, influence, power and potentiality of the wholesale druggist, the manufacturing chemist and pharmacist, the physician supply pharmacist, the proprietary manufacturer, etc., the influence, power, strength, and potentiality of each one of them has been so much divided that they do not and cannot produce enough income to give proper service return to members for their membership fees, to produce enough influence to secure a pharmacy corps in the army or prevent undesirable or secure desirable legislation in pharmacy, to produce enough power through money resource and standing to secure the publicity so much needed to educate the public up to knowing what the dispenser and compounder of medicines really means to their life and health.

Has it ever occurred to you to what little extent the pharmacist ever receives any publicity in the press of to-day, and how little the general public knows about his work? About the only kind of publicity he receives is of the undesirable sort

such as when some would-be suicide buys from him some carbolic acid or mercuric chloride. Under the federation of pharmaceutical associations as proposed there would be a department which would write up the achievements of pharmacy, her place in our every-day life and the good things pharmacists do and have always done. Only by the financial income made possible by federation could competent men be secured to specialize on such publicity systematically all over the land.

As desirable as it may be to "face the facts" that pharmacy is fast becoming a merchandizing business rather than a profession in order to get the correct viewpoint of the pharmacy of to-day and as necessary as it doubtless is to develop in pharmaceutical training and experience a talent and a knowledge for successful merchandizing, let me warn you that there is as well grave danger ahead for pharmacy if she deserts her mortar and pestle for the bargain counter and paying specialty. If the successful drug store of to-day is apparently the store of the chain or the store of the specialty controlled in either case by a large corporation; is such a store the proper one to maintain the purpose and need so well instilled in the mind of the physician and the public? Must we not, in other words, maintain our facilities and practice and reputation for compounding prescriptions if we hope to maintain the standing of our profession and its future life? Is not the growth of physicians supply manufacturing pharmacists in direct ratio to the decadence of the prescription counter at the expense of the bargain counter? If this is so—and I have no doubt that many of you agree with me that it is—then it seems wise to have our proposed federated association impressed with the importance of keeping the fires of pharmaceutical science burning at all hazards even though these be tempered with the merchandizing training needed to hold the public interest and attention. When the prescription threatens to become a lost art then will pharmacy be a dead science indeed.

Let us consider the journal so ably edited by our representative pharmacist and teacher, Prof. E. G. Eberle. He is doing the very best quality of conscientious progressive work that can be done. But the journal does not arouse much enthusiasm nor does it effectively stimulate membership nor does it bring up-to-date news in discovery or practice. It replaces our proceedings and spreads out over one year the occurrences of our annual meetings with a certain limited amount of special articles or editorials, branch meeting news, etc. When this reaches the member it is mostly old news, it occurred anywhere from thirty days to twelve months ago. This is not the editor's fault—it is the unfortunate condition created by the association and council when it did away with the Proceedings. As for me, give me the old volume of the Proceedings every time where I can find what I want in a moment and have it all compact. The result is the journal has but little circulation except among our own members and enjoys in consequence but a limited advertising value and secures but little income from this important source.

The same applies to the N. A. R. D. journal to some extent, and both editors are expected to edit the journals and secure the advertisements to make it self-sustaining and neither of them can successfully accomplish both and do not in consequence. In journals as in pharmacies we have by far too many of them for the good of the profession and for any to be of the quality they should be. Under federation with a membership of 25,000, think of what a journal the Association could produce and what a real chance Professor Eberle would have to produce something more nearly in keeping with his ideals and with the journals of the A. M. A. and the A. C. S. Then the Year Book, once the report on the progress of pharmacy of the old Proceedings. Surely the quality of the work that Professor Army is turning out leaves nothing to be desired. It is a splendid achievement and one of which this Association can well be proud. As a report on the progress of pharmacy it simply cannot be improved upon. But it reaches our members anywhere from one to three years late. Most of our members and most

pharmacists probably do not use it to the extent they should, but those that do are getting very old news and they are not as satisfied as they should be.

This is not Professor Arny's fault, for he is a very busy man and he can put in only his spare time to do this terrific amount of work and he simply cannot do more than he does nor could anyone else unless he were paid to devote all his time to the work with plenty of assistants working under the same conditions. This we cannot afford to do and so we must do the best we can under the inevitable handicap produced by the limited income produced by only 2700 members.

Let us face the situation as to what we propose to accomplish by federation; of what does it consist and how can we bring it about in a successful, useful and practical way.

We propose to accomplish, by federating all national and state pharmaceutical associations into one large association, the following important things:

1. A largely increased representative membership representing practically all those interested in and engaged in pharmacy in all its branches. As there are about 50,000 such available members we should secure at least 25,000, and if my ideas and plans are realized I feel we will get 35,000.

2. Unity of purpose and action in all matters pertaining to legislation, education, publicity, ethics, standards, methods, economics, and efficiency in pharmacy.

3. Real service to all pharmacists in the matter of a real leading journal and of permanent management and activity by competent well-paid men in laboratory work, legal advice and protection, expert advice, employees, trade marks and patents, exchange of unsalable goods, support and backing when unjustly attacked in press or court. We will, in short, be able to give more than a real *quid pro quo* in return for membership fees so that membership in the federated association will be a hall mark in pharmacy and be necessary to enable a pharmacist not a member to successfully compete with one who is a member.

4. A gradual elevation of the quality of those who enter the profession by a unanimous decision so to do. This is not possible with the divided interests that exist to-day, but quite possible when all favor it, work for it, and stand for it. This will gradually but effectively create increased recognition of the profession by the public and the law-making bodies of the nation.

5. Increased prosperity for the individual members in their business, due to decreased competition, increased efficiency and service, and less capital required to do business, due to the cooperation of all for the common good.

Federated pharmacy, as I conceive it, consists of a consolidation of all national and state pharmaceutical associations into one large association with a new constitution and by-laws, with a permanent set of offices and laboratories, library and bureaus in one building either owned or leased by the association and permanently managed by a Board of Control consisting of three well-paid, competent men. It means that all these national associations and state associations shall continue their individual existence as they are now and manage and direct their own affairs in their own particular line just as they have been doing by their own officers and organizations as heretofore. Thus the wholesale druggists will continue to be known as the N. W. D. A. or the Wholesale Section of the federated association and the same for the retail druggists which shall be known as the N. A. R. D. or the Retail Section of the federated association, etc. These will be analogous to the several sections of the A. M. A., as for instance the Gynecological Section of the A. M. A., etc. I use the words Federated Association because while I fully believe the name of this Federated Association should be and will be the American Pharmaceutical Association, I appreciate that this is a matter which the Federated Association, when formed, should itself decide. All matters, however, pertaining to the wholesale drug trade will be acted upon and decided upon in the meetings of that section of the federated association and their action shall be final and not subject to any review or action by the Federated Association and the same applies to the N. A. R. D. section, the manufacturers' section, the A. C. of Ph. F. section, etc. All matters, however, pertaining to general pharmacy shall be taken up, considered and acted upon in the House of Delegates and Council or upper chamber

of the Federated Association, such as legislation, ethics, publicity, service, law, relations to the public, to other associations, the state, the nation, etc. Wherever an united front is needed to accomplish a needed reform or law, the defeat of undesirable legislation or a desirable purpose helpful to pharmacy, the consideration should be had in the House of Delegates of the Federated Association. Membership in the Federated Association shall be individual and shall entitle the member to all publications and services of the association. If the sections determine to offer special services to their members for which they will charge special fees this will of course be quite proper; and for section memberships corporations, as well as firms or individuals may be eligible. Membership in the section also carries membership in the association but in case of corporations or firms these must name an officer or member of their firm or company to represent them in the association. Instead of going into all the details of the proposed federation I will submit herewith as part of this address a tentative plan for federation, which I have drawn up to serve as a practical basis for discussion of an actual method of effecting the proposed federated association and which I will read.*

From this you will see that practically everything is provided for and that a list of bureaus and laboratories is proposed which will render the services to which all members are entitled. Let me just refer especially to a few of these. The bureau of chemistry and pharmacy will be a laboratory where members can send their preparations or products to have them examined, tested or analyzed as to their label, literature, excellence of product, correctness of assay or strength, etc. This will be an advantage because they will know that it is being done by a friendly though accurate and just agency which will advise them fully about it and in confidence.

The exchange bureau for unsalable goods will enable them to exchange unsalable goods for salable goods and thus reduce their stock and with it the amount of money tied up in their business. Thus in many ways will it be possible in an association of which all pharmacists are members to be of service and assistance to members who will feel that they have back of them in this service the entire pharmaceutical profession.

The state associations will be integral parts of the federation, and membership in the federated association will entail membership in the state association. Whether they will be affiliated through the House of Delegates as such or whether they will be asked to form an association of state associations and have this represented in the House of Delegates by five delegates just as are all other national associations, is a matter which the federation must decide. To my mind it would be preferable for all the state associations like all state boards of pharmacy to form a national association of state associations and that this should meet as a section of the federated association attended by delegates duly appointed from each state association. They could in such an association harmonize many of their differences and points of opposition in prerequisite laws, licensing of pharmacies or pharmacists or both; educational requirements, etc., etc. They would have their voice in the federated association by being represented by five delegates similar to every other national association. Thus would the influence and organizing power of the federated association be much increased, spreading out and reaching into every state just as the A. M. A. does, only in case of the latter this is more complete still and extends to the county medical association, *i. e.*, subdivision of the state. We have provided in a way for this county association by the establishment of our local branches, which would of course be part of our association and eventually become subdivisions of the state associations.

We can bring about this badly needed and greatly to be desired federated association by all those engaged in pharmacy or any of its branches deciding to be willing to give and take and to agree that to be part of an united fraternalized profession is much better than to think only of ourselves and our special interest

* See September issue.

and let the others look after themselves. If we all agree not to want everything just our own way but accept a state of mind and organization that offers benefits to all that are impossible when we each paddle our own canoe, no reason exists why we should not federate our interests and in helping ourselves also help the other fellow. Then we can form such a federated association and develop an organization and a management as will enable pharmacy to hold its own with any other association or profession and secure many of the advantages and needed recognition now denied us because we are so unharmonious and uncoöperative.

Each association should then name delegates to represent it and act for it at a convention of associations called for the special purpose of forming a federated association, provided this is not accomplished as I hope it will be at the special meeting of our House of Delegates called for that purpose at this meeting Wednesday, August 14, at 4.30 P.M. My reason for hoping and believing that federation should be decided upon and entered upon now is that the time is opportune, the moment psychological and the world-spirit in harmony with federation and consolidation.

When you consider what medicine was before there was a large united A. M. A. and what it is now and what its relative influence and power was then and is now; and when you consider what a more or less useless and theoretical thing the American Chemical Society was once and what a powerful force for constructive good and influence it is now, you must appreciate and see what possibilities in growth, strength, influence, power and standing lie before pharmacy if she will only do as they did, and federate all her interests into one large association presenting a united front to all questions and problems that confront it. We are now in the position of the thirteen separate states and like them a prey to any united agency attacking us and in consequence usually, as in case of our pharmacy corps, laid low in the contest. When these thirteen states became the United States they surmounted all obstacles, accomplished many great things and eventually as to-day have become the greatest uplifting and constructive force in the world for the welfare of mankind and the struggle for liberty and the rights of man. Shall we remain the thirteen states or shall we become the United States, that is the great question which I now leave in your hands and in your hearts?

TO UNIFY MEDICAL NOMENCLATURE.

The medical section of the Council of National Defense has taken the initial steps toward establishing a uniform medical nomenclature and terminology in official and unofficial circles. The plan is to have the surgeon-generals of the Army, Navy and Public Health Service appoint representatives to confer on the matter of agreement concerning the names of diseases and injuries, as well as symbols, abbreviations, etc., and after a tentative list has been prepared it is proposed to call together representatives of the leading national bodies with a view to obtaining general agreement. It is expected that if the Government adopts a uniform nomenclature, the 20,000 doctors now in the military and naval service will, when they return to civil life, bring the standard terms into general use throughout the country. While this scheme is excellent as far as it goes, it appears to suffer from the limitations of provincialism that seem inseparable from nomenclatorial reforms started in this country. Apparently it has not occurred to its promoters that medical English is not monopolized by the United States, and that in seeking a uniform nomenclature the coöperation should be invited, on equal terms, of the medical authorities of Great Britain. This is especially desirable at the present time, in view of the fact that many American doctors are serving with the British forces.—*Scientific American*.

DISTINCTIVE PROPERTIES AND CLASSIFICATION OF ORGANIC AND COLLOIDAL SILVER COMPOUNDS.*

BY TORALD SOLLMANN.

CONTENTS.

1. Objects.
2. Tests and Data.
3. Classification.
4. Distinctive Properties of the Drugs.

I. OBJECTS.

A large number of silver protein compounds are now on the market, and it is desirable to classify these in a logical manner. Collargol, Argyrol and Protargol, for instance, evidently represent quite distinct types. May the other compounds be arranged under these three types, or are further groups necessary? What should be the criteria for a classification? The following investigation is intended as a partial and tentative answer to these questions. It includes the application and the discussion of a series of tests and data to the silver-protein and colloidal silver compounds accepted in "New and Non-official Remedies"¹ and of a few which have not yet been accepted.²

2. TESTS AND DATA.

Condition of the Silver.—Silver ions precipitate ordinary proteins and are therefore highly irritant to the tissues. Compounds containing their silver in non-ionized or "masked" or "colloidal" form do not precipitate and therefore largely avoid the irritation. This is the main object in the therapeutic use of these silver compounds. Various precipitant reactions may be used as tests for free silver ions. The most convenient, perhaps, is the precipitation of chlorides. A modification of this will be described later.

It may be stated now that all but two of the preparations contain all of their silver in non-ionized form; and these two (Albargin and Roche Silver Nucleinate) contain only a small, but not negligible, amount of ionized silver, presumably as a contamination.

Total Silver Content.—The quantities claimed by the manufacturers are shown in Table I. It will be noted that the content of the three typical compounds, collargol, argyrol and protargol, are distinctive; and the most of the other compounds approach one or the other of these types. It remains to be seen whether this coincides with other distinctive properties. Actually this is very generally the case.

Protein Component.—This is not very important, since it is practically a mere vehicle. Some of the manufacturers prefer to keep its nature secret, as a valuable manufacturing asset. Others follow the much more reprehensible course of giving misleading names to their proteins. This abuse is not easily stopped, since there is no known method for identifying the protein in the finished product. The data, as far as known, are shown in Table I.

* This investigation is partially supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

¹ Electrorgol was not included, because of its very low silver content.

² Silver proteinate, Heyden; Silver nucleinate and proteinate, Roche; Solargentum, Squibb; and Silvol.

TABLE I.—TOTAL SILVER CONTENT, AND PROTEIN COMPONENT.

| Drugs (arranged in order of silver content). | Claimed per- centage of silver | Claimed protein base. |
|----------------------------------------------------|--------------------------------------|---------------------------------------------------------|
| Collargol | 78 | |
| Cargentos | 50 | |
| Argyrol | 20-25 | Vitellin (in reality probably denatured egg albumen) |
| Squibb Silver Prot. | 19-23 | Gelatin |
| Roche Silver Nucl. | 20 | Probably denatured serum albumen |
| Solargentum | about 20 | Gelatin |
| Silvol | 20 | ? |
| Sophol | 20 | Methylen nuclemic acid |
| Albargan | 15 | Gelatin |
| Novargan | 10 | Albumin(?) |
| Protargol | 8-3 | Albumin(?) |
| Heyden Silv. Prot. | 8-3 | Albumin(?) |
| Roche Silv. Prot. | 8-0 | (?) |
| Hegonon | 7 | Albumose |
| Argonin | 4.28 | Casein |

Antiseptic Efficiency.—The silver-protein compounds are used almost exclusively on mucous membranes, for antiseptic or astringent, or for demulcent effects. A classification according to antiseptic efficiency would be desirable, but does not appear feasible at present. The results of culture experiments cannot be transferred with confidence to clinical conditions; and no satisfactory technic has been developed for life-tests.

Irritation.—This is perhaps the most important criterion for a clinical classification. It is easily judged by placing a few drops of the 1 : 10 watery solutions¹ in the nostrils, and in case of doubt also in the conjunctival sac. The method is subjective and incapable of absolute quantitative expression. Nevertheless the differences are sufficiently striking to permit arrangement into three groups, as in Table II.

The data refer to a 1:10 aqueous solution in the nostrils. Those which were also tried in the conjunctiva are marked **.

TABLE II.—IRRITATION.

| No irritation | Slight but distinct. | Marked irritation. |
|------------------------------|-------------------------------------------------|-----------------------|
| Argyrol | Protargol | |
| Argonin (5%) | Heyden Silv. Prot. | |
| Silvol** | Cargentos | Albargin ² |
| Sophol | Silv. Nucl. Roche | |
| Squibb Silv. Prot. | Silv. Prot. Roche** (very slight ²) | |
| Novargan | Hegonon** (very slight) | |
| Collargol | | |
| Collargol Old (5%) | | |
| Solargentum | | |

Albumen Precipitation.—This is in a sense an index of astringency. However, it was observed that some non-irritant preparations may, nevertheless, give a

¹ 1 : 10 Solution of the Silver Salts: 0.5 Gm. of the salt is dissolved in 5 Cc. of distilled water. This solution is also used for the egg-test, the absorption test, and the color index.

² Albargin gives a precipitate with sodium chloride. The filtrate from this appears less irritant. This suggests that the irritation is due largely, if not solely, to free silver ions.

precipitate with albumen. This is most conspicuous with silver. It may be that, in this case, the precipitation is due to a change of the colloidal state of the silver compound rather than in the albumen.

However, the test as elaborated, at least helps to distinguish certain of the compounds that are otherwise closely related. It is also an objective confirmation of the distinct though slight astringent action of all the members of the protargol type (Protargol, Roche and Heyden Silver Proteinate; and Hegonon); and of the marked astringent action of those containing free silver ions (Albargin; Roche Silver Nucleinate).

Technic of the Egg Test.—About $\frac{1}{2}$ inch (about 2 Cc.) of undiluted egg white is placed in a test-tube. To this is added 1 Cc. of 1 : 10 solution of the silver salt. They are thoroughly mixed by shaking, then allowed to stand for about 15 minutes, and then diluted with 15 Cc. of water. If this is too deeply colored, more water may be added. (The egg-white must be added undiluted, as stated.) The results are shown in Table III.

TABLE III.—ALBUMEN PRECIPITATION.

| | |
|-------------------------------------|-------------------------------------------|
| <i>The mixture remains clear:</i> | <i>The mixture is distinctly turbid:</i> |
| Argyrol | Protargol |
| Squibb's Silver Prot. | Novargan |
| Solargentum Squibb | <i>There is a distinct precipitation:</i> |
| Collargol | Heyden Silver Prot. (curdy) |
| <i>The mixture is nearly clear:</i> | Cargentos (very fine) |
| Argonin | Silvol (very fine) |
| Sophol | Silv. Nuclein Roche (curdy) |
| Silv. Prot. Roche | <i>Abundant curdy precipitate:</i> |
| Hegonon | Albargin (2 samples) |
| | <i>Unsuited for test</i> |
| | Collargol, old sample |

Adsorption.—The difference between the preparations are presumably based largely upon differences in their colloidal state. It was attempted to demonstrate them by the behavior toward adsorbents. "Permutit" was found to have no distinct effect on argyrol solutions and very little on protargol. "Lloyd's reagent," however, showed characteristic differences in the decolorization for the members of each group, although it had no apparent relation to a broader classification.

Technic.—One Cc. of a 1 : 10 solution of the silver salt is diluted with 0.5 Gm. of "Lloyd's Reagent" (Hydrated Aluminum Silicate), allowed to stand for a few minutes, and filtered. The color of the filtrate is noted.

The degree of decolorization is shown in Table IV.

TABLE IV.—ADSORPTION OF COLOR BY "LLOYD'S REAGENT."

| Practically completely destroyed. | Considerably destroyed.* | Little, if any, decolorized. |
|-----------------------------------|--------------------------|------------------------------|
| Argyrol | Protargol | Cargentos |
| Albargin (2 samples) | Silv. Prot. Heyden | Collargol |
| Argonin | Novargan | Sophol |
| Collargol, old sample | Silvol | Solargentum Squibb |
| Silv. Nuclein Roche | Hegonon | Silver Prot. Squibb |
| Silv. Prot. Roche | | |

* These are arranged in order of decreasing adsorption, the protargol filtrate being the least colored, and hegmon the most.

To a portion of the filtrate (further diluted if too dark) is added a drop of 25% sodium chloride, to reveal free silver ions. (Silver nitrate, even in very dilute solution, is not adsorbed by Lloyd's Reagent.)

Free Silver Ions.—The sodium chloride test is conveniently applied to the filtrate from the Lloyd's Reagent. The test was found negative with all but Albargin (two samples) and with the sample of Roche's silver nucleinate.

The presence of free silver ions renders the solutions irritant, and therefore defeats the special object of the protein compound.

Solubility Behavior.—Table V shows that nearly all the protein silver compounds dissolve promptly and completely, at least to 25%, when placed in contact with water. The most conspicuous exception is Argonin, which dissolves slowly and imperfectly, like dried serum.

A strikingly abnormal solution behavior is also shown by an old sample of Collargol, which could not be suspended in water. This had been kept in an amber, glass-stoppered bottle probably for over ten years.

TABLE V.—SOLUBILITY BEHAVIOR.

The following observations were recorded in making the 25% solutions:

Solution complete and very prompt:

Argyrol

Solution complete and prompt:

Protargol

Roche's Silv. Nucleinate

Squibb's Silv. Prot.

Silvol

Solution complete and fairly prompt:

Albargin

Hegonon

Heyden Silv. Prot.

Novargan

Sophol

Solargentum

Solution fairly prompt, but not quite complete:

Roche Silv. Prot.

Undissolved, sticky mass, 10% also incomplete, 1% is turbid:

Argonin

Permanent colloidal solution when triturated in water:

Cargentos

Collargol

Not miscible with water:

Collargol, old sample

Specific Gravity of 25 Percent Solutions.—Some ophthalmologists use the protein-silver compounds, especially the Argyrol type, for their specific gravity rather than for their antiseptic effect, the idea being that the heavier silver solutions would displace the secretions, pus and bacteria by gravity. Some such mechanical action would doubtless occur, if the patient is placed in the proper position; but if this has any value it would be obtained equally well, and much more cheaply, by a 25% solution of acacia.

The "25%" solutions were made by dissolving 0.5 Gm. of the substance in 1.5 Cc. of distilled water. The specific gravity was determined by weighing 1 Cc.

in an Ostwald pipette, at 20° C. The results are shown in Table VI, in descending order.

TABLE VI.—SPECIFIC GRAVITY OF 25% SOLUTIONS.

| | |
|------------------------|-------|
| Collargol..... | 1.230 |
| Cargentos..... | 1.166 |
| Solargentum..... | 1.159 |
| Argyrol..... | 1.147 |
| Acacia..... | 1.137 |
| Silvol..... | 1.137 |
| Sophol..... | 1.132 |
| Roche Sil. Nucl..... | 1.123 |
| Albargin..... | 1.112 |
| Heyden Silv. Prot..... | 1.108 |
| Protargol..... | 1.104 |
| Roche Silv. Prot..... | 1.100 |
| Hegonon..... | 1.093 |
| Novargan..... | 1.090 |
| Squibb Silv. Prot..... | 1.088 |

Argonin is not soluble to 25%. A 2.5% solution has the specific gravity—1.010.

Viscosity of 25 Percent Solutions.—This has no special relation to the natural groups, and is probably without clinical significance. It was estimated by the time of outflow from a 1 Cc. Ostwald pipette (from the 1 Cc. mark, to the junction of bulb and beak), at 20° C. The results shown in Table VII are arranged in descending order.

TABLE VII.—VISCOSITY OF 25% SOLUTIONS.

| Name. | Seconds required for outflow. (Water = 40 seconds.) | Viscosity. (Water = 1.) |
|------------------------|-----------------------------------------------------------|----------------------------|
| Hegonon..... | 285 | 7.125 |
| Sophol..... | 180 | 4.125 |
| Albargin..... | 174 | 4.350 |
| Squibb Silv. Prot..... | 135 | 3.375 |
| Cargentos..... | 120 | 3.0 |
| Roche Silv. Nucl..... | 102 | 2.550 |
| Protargol..... | 75 | 1.875 |
| Novargan..... | 71 | 1.775 |
| Argyrol..... | 54 | 1.350 |
| Heyden Silv. Prot..... | 53 | 1.325 |
| Silvol..... | 50 | 1.250 |

Acacia: The 25% solution flowed too slow for measurement. A 10% solution (1 Gm. + 9 Cc.) flowed in 165 seconds, corresponding to a viscosity of 4.125.

Argonin, Collargol, Solargentum, and Roche's Silv. Prot. did not dissolve completely, and thus could not be measured.

APPEARANCE OF THE COMMERCIAL PRODUCTS: This is only of incidental interest. The specimens may be arranged as follows:

Coarsely granular

- Argyrol (dull black masses)
- Collargol, old sample (dull gray-black masses)
- Collargol, fresh sample (brilliant steel blue granules)
- Solargentum (bright black granules)

Bright black scales:

Cargentos
 Silv. Nucl. Roche
 Silv. Prot. Squibb
 Silv. vol

Coarse Powders:

Albargin (appearance of dried albumen)
 Argonin (buff)

Fine powders: (arranged in order of decreasing depth of color)

Heyden Silv. Prot. (dark red to dark chocolate tint)¹
 Sophol (chocolate)
 Protargol (reddish brown)¹
 Roche Silv. Prot. (milk chocolate)
 Hegonon (milk chocolate)
 Novargan (buff)

Depth and Color of Transparency of 1 : 1000 Solutions.—This is a rough but useful aid to identification. The clearness or turbidity to reflected light appears related to the natural groups, the colloidal silver and the protargol type being generally turbid, whereas the argyrol type is generally clear.

For making the comparisons, one Cc. of 1 : 10 solution is added to 100 Cc. of water in a conical "urine-glass." The results are shown in Table VIII.

TABLE VIII.—APPEARANCE OF 1 : 10000 SOLUTIONS.

| | Solution clear both with transmitted and reflected light. | Clear with transmitted light, but turbid by reflected light. | Turbid but with transmitted and reflected light. |
|-----------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------|
| Color very deep | | Cargentos | Collargol |
| Color deep | Argyrol Silvol Solargentum Silv. Prot. Squibb | Silv. Nucl. Roche | |
| Color moderate | Hegonon Protargol ² Silv. Prot. Heyden Silv. Prot. Roche | Albargin Sophol | |
| Partially colored | Novargan | | |

Argonin has a different, violet tinge, and is turbid both by transmitted and reflected light.

Color Index.—Colorimetric measurements furnish a more accurate quantitative expression of the color-intensity. This is fairly characteristic for the groups, the collargol group standing the highest, the argyrol group intermediate, and the protargol group lowest. There are, however, individual exceptions. The color intensity increases with the silver content, but not in simple proportion.

Technic.—The 1 : 1000 to 1 : 50,000 solutions are compared with tenth normal potassium dichromate in a Duboseq colorimeter, set at 20. The tints do not match well, but sufficiently so to express the great difference in intensity.

The *simple color index* expresses the ratio of the color intensity of the 1 : 1000 solution of the silver compound, to the tenth-normal dichromate solution.

The *silver color index* is the simple index, divided by the percentage of silver in the compound. The results are shown in Table IX, with the compounds arranged in descending order of silver-color index.

¹ Different samples of Protargol and Heyden's Silver proteinate vary considerably in color.

² Different samples of Heyden's Silver Proteinate and of Protargol vary materially in color.

TABLE IX.—COLOR INDEX.

| Name of substance. | Dilu- tion. | Match of tint. | Read- ing. | Simple index. | Silver index |
|-----------------------------------|----------------|-------------------|---------------|------------------|-----------------|
| Collargol..... | 50,000 | fair | 16 | 62.5 | 0.80 |
| Heyden Silv. Prot. (average)..... | .. | .. | .. | 3.14 | 0.39 |
| Cargentos..... | 10,000 | good | 12 | 16.7 | 0.33 |
| Silvol..... | 10,000 | good | 31 | 6.5 | 0.30 |
| Roche Silv. Nucl..... | 10,000 | fair | 34 | 6.0 | 0.30 |
| Argyrol..... | 10,000 | fair | 48 | 4.2 | 0.20 |
| Squibb Silv. Prot..... | 10,000 | good | 47 | 4.3 | 0.20 |
| Protargol (average)..... | .. | .. | .. | 0.80 | 0.10 |
| Roche Silv. Prot..... | 1,000 | fair | 28 | 0.72 | 0.09 |
| Hegonon..... | 1,000 | poor | 50 | 0.4 | 0.06 |
| Sophol..... | 1,000 | poor | 40 | 0.50 | 0.025 |
| Albargin..... | 1,000 | very poor | 55 | 0.36 | 0.024 |

3. CLASSIFICATION OF THE PROTEIN AND COLLOIDAL SILVER COMPOUNDS.

The study of the preceding data has led to the compilation of the properties most useful for grouping. These are shown in Table X.

TABLE X.—CLASSIFICATION AND SIGNIFICANT PROPERTIES OF PROTEIN AND COLLOIDAL SILVER COMPOUNDS

| Principal types. Members. | "Collargol." Collargol. Cargentos. | "Argyrol." Argyrol. Squibb Silv. Prot. Sophol. Silvol. Solargentum(?) | "Protargol." Protargol. Roche Silv. Prot. Heyden " Hegonon. | "Free Silver." Albargin Roche Silv. Nucl. | "Pale" Norvagan Argonin. |
|----------------------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------|--------------------------------|
| Sliver content..... | 50 to 78 | 20 to 25 | 7 to 8.5 | * | 4 to 10 |
| Irritation..... | * | None | Slight but distinct | Marked | * |
| Albumen precipitation.... | * | * | More or less | Positive | * |
| Adsorption of color..... | None | * | More or less | * | * |
| Free silver..... | None | None | None | Present | None |
| Spec. Grav. of 25% sol.... | 1.160 to 1.230 | 1.132 to 1.147 | 1.093 to 1.108 | * | * |
| Transparency of 1 : 1000 sol. by reflected light... * | | Clear (except Sophol) | Clear | Turbid | * |
| Simple color index..... | 16.7 to 62.50 | 4.2 to 6.5 (ex- cept Sophol, 0.50) | 0.37 to 1.75 | * | Very low |
| Silver color index..... | 0.33 to 0.80 | 0.20 to 0.30 (ex- cept Sophol, 0.025) | 0.044 to 0.20 | * | Very low |

4. DISTINCTIVE CHARACTERS OF THE INDIVIDUAL DRUGS.

These are arranged by groups and shown in Tables XI to XIV.

* = Inconstant or not characteristic.

TABLE XI.—DISTINCTIVE CHARACTERS OF THE ARGYROL TYPE.

| Members | Argyrol | Squibb's Silv. Prot. | Sophol. | Silvol. | Solargentum |
|-------------------------------------------|-------------------------|----------------------|--------------------------|------------------------|-----------------------------------------------|
| Silver percent (claimed) | 20-25% | 19-23 | 20 | 20 | About 20 |
| Irritation by 10% sol | None | None | None | None | None |
| Allumen | No precipitate | No prec. | Nearly clear | Distinct prec | No precipitate |
| Lloyd's reagent filtrate | Complete decolorization | Not decolorized | Not decolorized | Consid. decolorization | Deeply colored |
| Free silver (chloride test) | None | None | None | None | Absent |
| Solution | Very prompt | Prompt | Fairly prompt | Prompt | Permanent |
| Sp. Gr. of 25% | 1.147 | 1.088 | 1.132 | 1.137 | 1.159 |
| Viscosity of 25% | 1.350 | 3.375 | 4.5 | 1.250 | Brilliant black granules |
| Appearance | Dull black mass | Bright black scales | Fine chocolate powder | Bright scales | |
| Color of 1:1000 sol. | Deep | Deep | Moderate | Deep | Deep |
| Transparency by reflected light | Clear | Clear | Turbid | Clear | Clear by both transmitted and reflected light |
| Sample color index | 4.2 | 4.3 | 0.50 | 6.5 | |
| Silver color index | 0.20 | 0.20 | 0.025 | 0.30 | 5.0 |
| Nature of Protein | Denatured albumen | Gelatin | Methylen nucleinate acid | ? | 0.25 |

TABLE XII.—DISTINCTIVE CHARACTERS OF THE COLLOIDAL SILVER TYPE.

| Members. | Cargentos. | Collargol (recent sample). |
|----------------------------------|-------------------------------------------------|---------------------------------------------|
| Percent silver (claimed)..... | 50 | 78 |
| Irritation by 10% sol..... | Slight, but distinct | None |
| Albumen..... | Fine precipitate | No precipitate |
| Lloyd's reagent, filtrate..... | Deeply colored | Deeply colored |
| Free silver (chloride test)..... | Absent | Absent |
| Solution..... | Permanent | Permanent |
| Spec. Grav. of 25%..... | 1.166 | 1.230 |
| Viscosity of 25%..... | 3.0 | |
| Appearance..... | Bright black scales | Brilliant steel blue granules |
| Color of 1 : 1000 sol..... | Very deep | Very deep |
| Transparency..... | Clear by transmitted light, turbid by reflected | Turbid, both with transmitted and reflected |
| Simple color index..... | 16.7 | 62.5 |
| Silver color index..... | 0.33 | 0.80 |

TABLE XIII.—DISTINCTIVE CHARACTERS OF THE PROTARGOL TYPE.

| Members. | Protargol. | Roche Silv. Prot. | Heyden Silv. Prot. | Hegonon. |
|-------------------------------------|-------------------------------------|-----------------------------|------------------------------------|-----------------------------|
| Silver percent (claimed)..... | 8.3 | 8.0 | 8.3 | 7.0 |
| Irritation by 10% sol..... | Distinct | Very slight | Distinct | Very slight |
| Albumen..... | Turbid | Nearly clear | Almost clear to curdy precipitate | Nearly clear |
| Lloyd's reagent, filtrate..... | Considerably de-colored | Completely de-colored | Considerably de-colored | Somewhat de-colored |
| Free silver (chloride test)..... | None | None | None | None |
| Solution..... | Prompt | Limited | Fairly prompt | Fairly prompt |
| Sp. Gr. of 25% sol..... | 1.104 | 1.100 | 1.108 | 1.093 |
| Viscosity of 25% sol..... | 1.875 | | 1.325 | 7.125 |
| Appearance..... | Reddish brown, fine powder | Fine, milk chocolate powder | Fine, red to dark chocolate powder | Fine, milk chocolate powder |
| Color of 1 : 1000 sol..... | Moderate | Moderate | Moderate to deep | Moderate |
| Transparency by reflected light.... | Clear | Clear | Clear to turbid | Clear |
| Simplex color index | Av., 0.80 (0.37, 0.72, 0.77, 1.25) | | Av., 3.14 (0.96, 0.4, 1.75, 6.7) | |
| Silver color index.. | Av., 0.10 (0.044, 0.09, 0.09, 0.15) | | Av., 0.39 (0.12, 0.06, 0.20, 0.80) | |
| Nature of protein base..... | ? | ? | ? | Albumose |

TABLE XIV.—DISTINCTIVE CHARACTERS OF SUNDRY TYPES.

| Members. | Atypical. Novargan. | Atypical. Argonin | Free silver ions. Albargin. | Free silver ions. Roche Silv. Nucleinate. |
|----------------------------------------|-------------------------------|-----------------------------|-------------------------------------|----------------------------------------------|
| Silver percent (claimed)..... | 10.0 | 4.28 | 15.0 | About 20 |
| Irritation by 10% sol. | None | None (5%) | Marked | Distinct |
| Albumen..... | Turbid | Nearly clear | Abundant curdy precipitate | Curdy precip- itate |
| Lloyd's reagent, filtrate. | Considerably de- colorized | Completely de- colorized | Completely de- colorized | Completely de- colorized |
| Free silver (chloride test)..... | None | None | Present | Present |
| Solution..... | Fairly prompt | Limited & gummy | Fairly prompt | Prompt |
| Sp. Gr. of 25% sol.. | 1.090 | | 1.112 | 1.123 |
| Viscosity of 25% sol..... | 1.775 | | 4.35 | 2.55 |
| Appearance..... | Fine, buff powder | Coarse, buff powder | Coarse powder like dried albumen | Bright, black scales |
| Color of 1:1000 sol. | Pale | Pale | Moderate | Deep |
| Transparency by reflected light.... | Clear | Turbid | Turbid | Turbid |
| Simple color index.. | | | 0.36 | 6.0 |
| Silver color index.. | | | 0.024 | 0.30 |
| Nature of protein base..... | ? | Casein | Gelatin | ? |

SUMMARY.

The colloidal and silver compounds may be arranged into a few typical groups:

The Collargol Group, comprising Collargol and Cargentos.

The Argyrol Group, Argyrol, Squibb's Silver Proteinate, Sophol, and Silvol and Solargentum.

The Protargol Group: Protargol, Roche's Silver Proteinate, Heyden Silver Proteinate, and Hegonon.

The Free Silver Group: Albargin and Roche's Silver Nucleinate.

The Pale Group: Novargan and Argonin.

The distinctive data of these groups are shown in Table X; the detailed data are reproduced in Tables I to IX, arranged according to the tests; and in Tables XI to XIV, arranged according to the drugs.

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VARIATIONS IN NUX VOMICA AND ITS PREPARATIONS.*

BY HUGO H. SCHAEFER.

One of the more important changes in the U. S. P. IX as compared to the former revision is that of the alkaloidal requirement for Nux Vomica and its assay process. The former requirement called for 1.25% strychnine and in its determination the well-known assay process was used in which the total alkaloids are extracted, the brucine destroyed, by means of nitric acid and the remaining alkaloid calculated as strychnine. In the U. S. P. IX the requirements are for 2.5% total alkaloids and the assay process is of course based on the simple extraction and titrating of all the alkaloids of Nux Vomica.

It was found by the author that a greater percentage of samples of Nux Vomica met the requirements of the new Pharmacopoeia than that of the old. In other words that 2.5% total alkaloids was a lower standard than 1.25% strychnine. In order to definitely determine this question a number of samples of powdered Nux Vomica were taken and assayed according to the U. S. P. IX for total alkaloids. After titrating the latter the solution was made alkaline with ammonia water, completely shaken out with chloroform, the latter evaporated and the residue taken up with 15 mls of 3% sulphuric acid. This solution was now treated with nitric acid to destroy the brucine and the assay completed as described in the U. S. P. VIII, for the determination of strychnine. This data so obtained gave the total alkaloidal content, the percentage of brucine and that of strychnine in Nux Vomica, it being taken for granted that the other alkaloids present appear in so small a quantity as to justify their not being considered. The results obtained were as follows:

| POWDERED NUX VOMICA | | U. S. P. VIII = 1.25% STRYCHNINE. U. S. P. IX = 2.5% TOTAL ALKALOIDS. | |
|---------------------|----------------------------------------|--------------------------------------------------------------------------|----------------------------|
| Sample. | Total alkaloid. Method U. S. P. IX. | Strychnine. Method U. S. P. VIII. | Brucine. by difference. |
| A..... | 2.64% | 0.88% | 1.76% |
| B..... | 2.93 | 1.32 | 1.61 |
| C..... | 2.52 | 0.73 | 1.79 |
| D..... | 1.92 | 0.73 | 1.19 |
| E..... | 2.97 | 1.54 | 1.43 |
| F..... | 3.21 | 1.25 | 1.96 |
| G..... | 2.71 | 1.30 | 1.41 |
| H..... | 3.53 | 1.30 | 2.23 |
| I..... | 2.38 | 1.26 | 1.12 |

A number of interesting points may be obtained by studying these results. Of the nine samples all but two would come up to the requirements of the U. S. P. IX while three would not meet those of the U. S. P. VIII. Samples A and C would pass U. S. P. IX but not U. S. P. VIII. Sample D would pass neither the old nor the new requirements while Sample I would pass the U. S. P. VIII and not IX. There therefore seems to be absolutely no relation between the percentage of total alkaloid and that of strychnine. The percentage of strychnine in the total alkaloid varies from 33 to 53%.

Samples of fluidextract and tincture of Nux Vomica were now taken at random and assayed in similar manner as before described, first in accordance with the

* Read before New Jersey Pharmaceutical Association, 1918 meeting.

U. S. P. IX to determine total alkaloid after titration was shaken out with chloroform and the strychnine determined according to the U. S. P. VIII with the following results:

| FLUID EXTRACT { U. S. P. VIII = 1% STRYCHNINE. U. S. P. IX = 2.37-2.63% TOTAL ALKALOIDS. | | | |
|---------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------|---------------------------|
| Sample. | Total alkaloid. Method U. S. P. IX | Strychnine Method U. S. P. VIII. | Brucine by difference. |
| A..... | 2.46% | 0.79% | 1.67% |
| B..... | 2.64 | 1.27 | 1.37 |
| C..... | 2.51 | 1.03 | 1.48 |
| D..... | 2.39 | 0.91 | 1.48 |
| E..... | 2.41 | 1.21 | 1.20 |
| F..... | 2.48 | 0.77 | 1.71 |

| EXTRACT { U. S. P. VIII = 5% STRYCHNINE. U. S. P. IX = 15.2-16.8% TOTAL ALKALOIDS. | | | |
|---------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------|---------------------------|
| Sample. | Total alkaloid. Method U. S. P. IX | Strychnine. Method U. S. P. VIII. | Brucine by difference. |
| A..... | 15.41% | 4.93% | 10.48% |
| B..... | 16.32 | 6.69 | 9.63 |
| C..... | 14.89 | 5.21 | 9.68 |
| D..... | 17.1 | 8.21 | 8.89 |
| E..... | 15.61 | 6.71 | 8.9 |
| F..... | 16.45 | 6.01 | 10.44 |

| TINCTURE { U. S. P. VIII = 0.1% STRYCHNINE. U. S. P. IX = 0.237-0.263% TOTAL ALKALOIDS. | | | |
|--------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------|---------------------------|
| Sample. | Total alkaloid. Method U. S. P. IX. | Strychnine. Method U. S. P. VIII. | Brucine by difference. |
| A..... | 0.241% | 0.111% | 0.130% |
| B..... | 0.271 | 0.084 | 0.187 |
| C..... | 0.213 | 0.079 | 0.134 |
| D..... | 0.224 | 0.114 | 0.110 |
| E..... | 0.251 | 0.080 | 0.171 |
| F..... | 0.249 | 0.102 | 0.147 |

Again the results show that there is absolutely no relation between the percentage of total alkaloid and that of strychnine and some of the samples while meeting the requirements of our present Pharmacopoeia show a decided deficiency in strychnine content as required by the U. S. P. VIII.

The question therefore suggests itself whether it would not be better to have both a requirement for total alkaloid and for strychnine. Considering the results obtained from the powdered Nux Vomica, Sample C contained 2.52% total alkaloid and yet is of decidedly inferior quality since it only contains 0.73% strychnine. On the other hand Sample I contains 1.26% strychnine but only 2.38% of total alkaloids therefore also of inferior quality. In the opinion of the author no difficulty would be had in obtaining Nux Vomica on the market, which contains at least 2.5% total alkaloids and 1.25% of strychnine. The combination assay process as suggested before could be used thereby requiring only one sample for the entire assay and making it a little more difficult and complex than the assay of the U. S. P. IX.

SOME OBSERVATIONS ON THE DISSOLVING OF ZINC CHLORIDE AND SEVERAL SUGGESTED SOLVENTS.*

BY JOSIAH C. AND BERTHA L. DEG. PEACOCK.

The salts of zinc which are soluble in water, especially the sulphate, acetate and chloride, have long been used in injections, lotions, eye-washes, mouth-washes and other such forms of application, usually in weak solutions, a few grains to the ounce.

The sulphate and acetate of zinc readily dissolve in water without residue; but zinc chloride upon contact with water has a strange behavior, and when treated with water in large proportions leaves an insoluble residue known as oxychloride, or basic chloride of zinc; it matters not which is added to the other. This undissolved portion is bulky, therefore impressive as to quantity especially when resulting from one or two grains of zinc chloride intended for eye-drops. That it does contain both zinc and chlorine, we have assured ourselves by qualitative analysis; it may therefore be rightly termed, basic chloride of zinc, or oxychloride. Whatever of oxide of zinc or oxychloride of zinc was present in the sample dissolved may also be looked for here.

In order to appreciate the quantity of oxychloride usually left undissolved, let us cite a reference found in the Proceedings of the American Pharmaceutical Association, 1896, page 715, "Zinc Chloride-Dissociation by Water" Perrot has observed that when zinc chloride, free from oxide was dissolved in water, a precipitate was formed, which had the composition $\text{ZnCl}_2 \cdot 5\text{ZnO} \cdot 6\text{H}_2\text{O}$. An inquiry into the relations of the quantity of water to the amount of oxychloride formed resulted in the determination that by employing 100 molecules of water, 3.75 percent of oxychloride was formed, the same quantity was formed with 75 molecules, 3 percent was formed with 50 molecules and 2.6 percent with 25 molecules. "The limit of the reaction is, therefore, with 75 molecules of water, the addition of large quantities giving no increase in the yield of oxychloride." *Pharm. Centrall.*, January 23, 1896, 46 from *Bull. soc. chim.*, 1895, 975.

Commercial zinc chloride may contain some pre-existent oxychloride as an impurity from over-heating in manufacture, and samples of medicinal zinc chloride such as the official grade are expected to show a separation of oxychloride under the condition named; the United States Pharmacopoeia accordingly provides a test for limit of oxychloride.

The equation commonly used to explain the change of zinc chloride through the effect of water into this basic salt is $\text{ZnCl}_2 + \text{H}_2\text{O} = \text{Zn}(\text{OH})\text{Cl} + \text{HCl}$.

As already mentioned the precipitate is strikingly bulky, but is by no means a great part of the zinc salt taken. The production of free hydrochloric acid as shown by the equation, is perhaps the reason that all of the zinc is not precipitated by the water. A proper conception of this reaction demonstrates the fact that every clear solution of zinc chloride that is obtained by dissolving zinc chloride in large quantities of water is a solution of zinc chloride plus hydrochloric acid. This is a matter to be noted toward a better understanding of the behavior of this peculiar substance, for although at this point the statement is largely inference it will, in due course, become a proven fact.

* Read before Pennsylvania Pharmaceutical Association, 1918 meeting.

Even though the undissolved matter is no great part of the zinc chloride, it does of course represent activity which it is the duty of the pharmacist to vouchsafe to the patient. Therefore, to remove it would be wrong, to dispense it in eye-drops, or similar preparation, would be useless, if not productive of more serious trouble than an explanation.

When first we encountered this behavior we could not take time to investigate it, so acting under the impression that free hydrochloric acid would be present in any event, as shown by the equation, we concluded that the most practical thing to do was to supply that through lack of which the obstacle arose; in other words, add sufficient hydrochloric acid to the zinc chloride itself to enable the water to carry all of the zinc chloride into solution, realizing as already said, that free hydrochloric acid would be present in the finished product whether all or only part of the zinc chloride was in solution, for this procedure assures the zinc to the patient.

The addition of the hydrochloric acid was made in the dispensing of several grains of zinc chloride by putting a single drop of concentrated acid upon the salt, and after mixing by trituration the water was added. When but a grain or two of zinc chloride was to be dissolved, a mere trace or touch of the acid was used, or a portion of a diluted drop. Much less acid is needed if put directly upon the zinc salt. Any mixture prepared without this addition and showing turbidity was rejected because too much acid would have to be added to the fluid. The effect of the acid added is to produce zinc chloride and water; $\text{Zn(OH)Cl} + \text{HCl} = \text{ZnCl}_2 + \text{H}_2\text{O}$ the very material desired in the product. We have often wondered "what better can be done?" Theory would indicate that the hydrochloric acid in the liquid could be neutralized by mixing it with zinc oxide or carbonate and filtering off the undissolved portion. This plan however is neither so accurate nor so simple as it appears when tried on a small lot of eye-drops.

Although the plan of adding acid had been used for many years, without any untoward effects, there might have arisen a comparison between the work of dispensers, wherein the reason for such an addition might be difficult of explanation to the lay mind, for although we believed we were acting within the bounds of right judgment, it might not have been possible to satisfy the patient that such was the case. Nor was the patient the only one who might have to be convinced of the common-sense of the plan, as we shall soon learn, and it was this apprehension, perhaps, more than any other influence that persuaded us to look for another solvent. Since undertaking this study of the subject, we find that others have practiced this method as the only practical means of dissolving zinc chloride. Indeed we find that this problem had been referred to a commission of apothecaries and physicians in Belgium, because physicians were objecting to the use of the acid. This body discomenanced the use of the acid, and recommended the use of a turbid solution or the clear liquid therefrom, either of which as has been pointed out will contain the same amount of free hydrochloric acid, *produced but not added*. Referring to the report of this commission, Dr. Paul Wiskirchen, in the *Pharm. Zeitung*, 1899, page 268, states that he finds "the addition of acid is unnecessary. He finds that if it is attempted to dissolve pure zinc chloride in cold water, or if cold water is added to a clear solution of zinc chloride, turbidity is invariably produced, but

if the solution is effected with hot water, or if the dilution is made with hot water, clear solutions result, and so remain permanently." This quotation is from the proceedings of the American Pharmaceutical Association, 1900, page 717, for which it was abstracted from the *Pharm. Centralhalle* of August 17, 1899, page 508. In the same proceedings for 1907, page 850 we find another abstract which we quote in its entirety.

"Zinc Chloride—Simple Method to Effect a Clear Solution.—Franz Wipperfurth directs attention to the fact that while pure zinc chloride usually produces a turbid solution when it is dissolved in cold water, it dissolves perfectly clear in hot water and the solution remains clear on cooling (*Pharm. Zeitung*, Li, No. 73 (1906) 807)." Wondering whether we had shut our minds to such a simple and efficient agent as hot water, we hastened to try the suggestion, but only to be utterly disappointed, for we found no appreciable difference in either the immediate or prolonged effect of hot or cold water, in dissolving the salt, or diluting concentrated solutions. If there is any perceptible difference in the effect of hot water from that of cold water, it is merely in making the sediment more dense and to settle somewhat faster, perhaps to be overlooked more easily. Not satisfied to record a refutation of these statements without sufficient proof, we made dozens of tests under varying conditions and quantities, but all to no avail. The statements are erroneous. It was now decided to look into the properties of zinc chloride itself as the most rational starting point of our quest.

One of the characters of zinc chloride which should be borne in mind throughout the consideration of this subject is that property of its solutions to turn litmus from blue to red, or, as usually described, its acid reaction. As is well known this property is common to many of the soluble salts of the metals; we merely want to remind ourselves at this time that it does not indicate free acid. The sample of zinc chloride which was employed for these experiments conformed to the U. S. P. requirements as to limit of oxychloride content and production; it also conformed to the other tests of the same standard. After a number of experiments made more or less at random to determine features which seemed to have bearing upon the matter in hand, a series of experiments was outlined through which it was purposed to follow some zinc chloride in order to note its behavior under varying conditions. Accordingly, a convenient portion of it was placed in a vessel and water added drop by drop with constant stirring. Approximately an equal weight of water dissolved it—the mixture becoming warm as solution progressed—and a practically clear solution resulted. The addition of water in small portions was continued until a decided precipitate made its appearance. These experiments were repeated several times with different amounts of zinc chloride. On an average it required over five times as much water as zinc chloride to produce a permanent turbidity or precipitate. The further dilution of these turbid solutions with water threw out more precipitate, so the addition of water was continued until to all appearances no more oxychloride was being produced. This condition appeared to be attained when twenty or more parts of water had been added. One of these mixtures was allowed to settle and the clear supernatant liquid decanted upon asbestos wool. The filtrate was placed upon a water bath for evaporation. The undissolved portion (oxychloride) was washed and boiled with

sodium carbonate to separate the zinc and chlorine, both of which were shown to be present.

Before passing on to the consideration of the evaporated filtrate let us observe some of the behaviors of the clear solution of equal parts of zinc chloride and water. The statement is common in works of reference that zinc oxychloride is dissolved by zinc chloride solution; now the fact, that up to a certain dilution a clear solution of zinc chloride is possible must certainly be conceded to be proof of this statement. The inference then would be that the total acidity of the zinc chloride solution is sufficiently powerful in that certain concentration to hold in solution any oxychloride which existed in the sample as well as to prevent the separation of the incipient oxychloride which will be manifested upon a further dilution.

Looked at from the view point which attaches to precipitated oxychloride, another significance to be gathered from this phenomenon is that there is a limit to the ability of the acidity of the zinc chloride solution to hold the oxychloride in solution, and, as through gradual dilution this power suffers attenuation the separation of oxychloride progresses until exhaustion is attained when down comes such balance of zinc in the form of oxychloride as the weakened acidity of the solution can no longer hold dissolved. The present acidity of the solution must, therefore, be looked upon as the only reason that all of the zinc is not thrown out in preparing clear zinc chloride solutions by dissolving or diluting with water.

That this acidity must be sufficient, though not necessarily of a related form, was proven through a fortunate thought which occurred just before finishing the work upon these tests, namely, zinc chloride can be dissolved in a well charged carbonic acid water, without residue of oxychloride, and further evidence that acidity is the essential was shown by the fact that if this same solution is boiled or agitated to expel the carbon dioxide, the insoluble oxychloride appears. Boiling caused its immediate separation, agitation revealed it but slowly, while quiet maintained a clear solution for over four days, when afterwards the application of heat caused the escape of a few bubbles of gas, and the looked-for precipitate appeared. But for its fleeting nature, what could be better for our need? That there may be a trace of oxychloride yet held in solution by the combined acidities of the zinc chloride and free acid which have ever enveloped it, would be difficult indeed to prove, but it was proven that a clear solution of zinc chloride of greatest strength possible will not dissolve oxychloride which has been previously separated from a solution. A portion of the cold, clear concentrated solution of zinc chloride was mixed with a small amount of zinc carbonate without change in appearance, but upon boiling the mixture the zinc carbonate dissolved. Even after no more carbonate would be taken up the solution retained its power to redden litmus. On the other hand, a clear solution of zinc chloride from which oxychloride has been completely separated by sufficient dilution, did not dissolve zinc oxide or carbonate, even upon prolonged digestion with heat, thus indicating that in this dilution the affinity between the zinc oxychloride and hydrochloric acid as a balanced condition within the solution is greater than between the zinc oxide and hydrochloric acid.

The liquid which was placed upon the water bath was evaporated to nearly constant weight. It was now in the form of a thick, syrupy liquid, for zinc chloride cannot readily be dried on a water bath under atmospheric pressure. Besides,

what moisture it retains this syrupy residue would be expected to also contain the hydrochloric acid from the reaction producing the oxychloride from which it had been filtered; later it will be shown that it does contain this hydrochloric acid.

Two series of experiments, with this syrupy residue, were arranged. In the first of these it was mixed with water gradually added and finally increased to a considerable bulk to find that it dissolved clear throughout. It was then re-evaporated under the same condition to a syrupy consistency and again found to dissolve clear; a third such treatment was given to it, and a third time it dissolved clear. The reason for its doing so was the presence of a sufficient amount of said hydrochloric acid, tenaciously retained throughout the evaporation, to effect solution, as was proven to be the case by treating the syrupy liquid of the second series of experiments with zinc carbonate. When put into the syrupy liquid the zinc carbonate made no demonstration of the presence of acid until the mixture was thinned with just sufficient water to permit of enough motion for reaction. Effervescence then took place with the disappearance of the small amount of zinc carbonate which had been added. More zinc carbonate was now added until in excess, and the solution warmed, gradually but abundantly diluted with water, and filtered. The clear liquid would now be considered as containing no free hydrochloric acid. Next, it was evaporated to a syrupy consistency on a water bath, and then mixed with water as had been done in the experiment just preceding it. Instead of dissolving clear as the preceding one, the present experiment gave with the first portion of water a clear solution but upon further dilution an abundant residue of oxychloride. This was separated and the filtrate evaporated as before, and upon treatment with water gave a clear solution, thus showing that the acid which was produced in the solution, along with the oxychloride was sufficient to redissolve all of the zinc chloride. Another evaporation and solution substantiated this opinion. The liquid of the first series was now evaporated for the fourth time, and after it had reached the syrupy consistence, the vessel was placed over a direct flame, and the heat continued, while tests were made from time to time, by removing a drop with a glass rod, until a point was reached when the drop gave a turbidity with water. This stage was not attained until after and in succession the last trace of moisture which had been held so tenaciously by the zinc and the adhering hydrochloric acid had been driven off and the zinc chloride had been liquefied by the heat, giving additional evidence that adhering hydrochloric acid had been the reason for this syrupy liquid persistently dissolving clear. The fused residue was now treated with an abundance of water and the mixture filtered. This filtrate was evaporated to a syrupy condition as before and found to dissolve clear in water. Another fused mass corresponding to that just described was treated with a limited quantity of water and upon filtering, evaporating and again diluting, oxychloride separated, because when the mass was treated with the limited quantity of water not enough water was present to adjust the acidity so that the full production of oxychloride might take place. The insoluble portions of the fused masses were all shown by tests to be oxychloride.

In order to observe a specimen of zinc chloride which had never been in a solid state and thus avoid oxychloride due to overheating, a concentrated solution was prepared by saturating warm hydrochloric acid with zinc oxide added in excess.

The clear supernatant liquid from this mixture precipitated with both hot and cold water and in all respects corresponding dilutions behaved exactly as those obtained from the dissolved salt. One could imagine nothing more likely to be chemically neutral than this solution prepared by neutralizing the acid with the zinc base, and its precipitation by water must convince the most skeptical that free acid is not only present in every diluted zinc chloride solution prepared with water alone as the solvent, but also needed to insure complete solution.

Neutralize such diluted solution in part, and simultaneously with the precision of natural law readjustment takes place between the zinc chloride and the water present, with the formation of oxychloride and the production of a corresponding amount of free acid; there will be free hydrochloric acid in a diluted solution made with water alone while there is zinc chloride left in it.

Any amplification of these experiments will but reiterate the proven fact at first but inference—that when this dilution is reached there has been formed and retained enough hydrochloric acid sufficient to re-dissolve the residue in any amount of water that may be added.

So much for our study of zinc chloride under the conditions of ordinary manipulation by the pharmacist, and like every definite chemical substance it always behaves the same under identical conditions no matter how often they recur. And still the problem—to get zinc chloride into solutions of such strength as ordinarily called for in prescriptions, without loss—remained unsolved. Left as we were to make the best of what cannot be changed, one might decide, and with sanction of authority, as previously pointed out, to prepare a solution of zinc chloride and ignoring the slight precipitate, ascribe to it an approximately definite strength and of this take sufficient quantity as needed. Such course is perhaps the next best plan to getting the zinc salt entirely dissolved, but the accomplishment of the latter was what had prompted the work; and yet meditation seemed to be but closing the door to possibility.

While reviewing numerous experiences with zinc chloride in prescription work, it was thought that there was a possibility of boric acid being the agent sought. It had been used a great many times in eye-washes with zinc chloride but had never been depended upon for solvent effect. Its suitability to eye-washes and its mild acidity, however, strongly urged a trial, and the first experiment showed that it has the very property desired, while subsequent trials established the fact that boric acid will give clear solutions with zinc chloride, grain for grain, in any dilution, hot or cold, up to about twenty grains per ounce. Boric acid applied to the zinc chloride will prevent the precipitation of zinc oxychloride; it will also redissolve a precipitate of oxychloride, although proportionately more is then required than is needed to prevent the precipitate. A saturated solution of boric acid is a convenient form in which to employ the agent, adding it directly to the zinc chloride, or the reverse. Saturated solutions of boric acid at ordinary indoor temperatures contain about twenty grains of boric acid to the fluid ounce; these solutions will dissolve an equal amount of zinc chloride. If such concentrated solutions of zinc chloride are exposed to a lower temperature, they become cloudy, peculiarly so, and though cleared by warmth they do not retain their transparency.

Solution by means of boric acid may also be accomplished by mixing the boric acid intimately with the zinc chloride before the aqueous solvent is applied. This plan involves some allowance for the slow solubility of the boric acid itself. Solutions of zinc chloride by means of an equal amount of boric acid are permanent, with the exception of the saturated solution as already mentioned. Less than an equal amount of boric acid does not appear to insure permanency.

The limit of solubility of boric acid is the only shortcoming of this agent so far observed. It is of interest to note for subsequent comparison, that upon boiling zinc oxide or zinc carbonate and boric acid together, no zinc enters solution.

While little, if any, objection can be raised to the use of boric acid in this connection, yet because of its limited effect we sought for another solvent less restricted. Attention had been arrested by a reference to the soluble double salts which zinc chloride forms with ammonium chloride, and effort was turned in that direction. The results with boric acid had strengthened the belief that an acidulated medium is essential to the purpose, and associating this thought with the fact that solutions of ammonium chloride are prone to redden litmus, unquestionably through the presence of a trace of free hydrochloric acid, it was undertaken to learn what effect ammonium chloride would have in the dissolving of zinc chloride. Gratifying, indeed, was it to find in the substance a very efficient solvent, and more powerful than boric acid, for applied directly to the zinc chloride one grain of ammonium chloride will dissolve five grains of zinc chloride. If used to dissolve a precipitate of oxychloride an additional amount may be needed, apparently dependent on strength of solution. The solutions with ammonium chloride are permanent.

There would seem to be no objection to the use of the few grains of ammonium chloride which would be needed to prepare an application for a mucous membrane since such parts are constantly saturated with solution of chlorides and likewise inured to the presence of ammonium compounds. Should a very strong solution of zinc chloride be needed as for powerful local effect, ammonium chloride may be depended upon to yield a clear solution.

The possibility of decomposing ammonium chloride in solution with zinc oxide, in the capacity of an alkali or alkaline earth, had not come to mind until now. Upon boiling zinc oxide with a solution of ammonium chloride it was found that the zinc oxide dissolved, of course, with the inevitable liberation of ammonia. Zinc carbonate behaves in this same manner with ammonium chloride. A parallel test with water was made to check up these results against any soluble zinc impurities in the oxide and carbonate. Herein may be considered to abide the solvent effect of ammonium chloride on zinc oxychloride—an effect again attributable to acidity of medium.

Representing the action by the equation $\text{Zn}(\text{OH})\text{Cl} + \text{NH}_4\text{Cl} = \text{ZnCl}_2 + \text{H}_2\text{O} + \text{NH}_3$, ammonia gas might at first be expected to be in evidence. But when it is recalled that free hydrochloric acid is present or producible in a quantity definitely proportionate to the oxychloride to be dealt with, it is readily understood that no ammonia should be evolved, nor was any, as proven by test.

Sodium and potassium chlorides have no solvent effect upon zinc chloride, but ammonium chloride gives a clear solution of zinc chloride in normal salt solution, and so does boric acid.

A sample of zinc ammonium chloride was prepared by adding to a solution of zinc chloride of known strength the calculated amount of ammonium chloride to supply an equal number of molecules of the two salts. Crystallization of this solution yielded a product which was recrystallized to obtain the sample shown at this time. The identity of the product was established by tests.

Zinc ammonium chloride forms colorless, transparent crystals, without odor and having an intensely caustic taste. It is readily and completely soluble in water; the aqueous solution is acid to litmus; the solution remains permanently clear. This salt is not an article of commerce in channels through which the pharmacist trades, nor is its use suggested, for the acquisition of it needlessly increases one's stock, especially since boric acid and ammonium chloride must always be at hand.

Since medicated waters are frequently used in solutions for treating conditions wherein zinc chloride is likely to be employed, some experiments were made to observe the behavior of these liquids toward zinc chloride. Peppermint water was found to act as does distilled water, boric acid and ammonium chloride but yield clear solutions. Camphor water was found to possess acidity sufficient to dissolve zinc chloride up to ten grains per ounce. Beyond that strength camphor water takes on a satiny opalescence due to the separation of microscopic crystals of camphor. The addition of ammonium chloride increases this opalescence. But with or without ammonium chloride these camphor crystals re-enter solution within a few days, or immediately upon the addition of a few drops of alcohol. The samples of rose water at our disposal were neutral to litmus; they did not dissolve zinc chloride completely until boric acid or ammonium chloride was added. A past experience but well remembered, leads us to believe that specimens of rose water may be encountered which will give clear solutions.

Mucilage of sassafras pith did not dissolve the zinc chloride, until boric acid or ammonium chloride was added; but though the zinc oxychloride went into solution the mucilage was rendered cloudy by its contents.

The statement that zinc chloride forms soluble double salts with some alkalis as well as with ammonium chloride was tried out with some of those used in eye-washes, with the following results: Equal parts of morphine hydrochloride and zinc chloride did not yield a clear solution, until ammonium chloride was added. Equal parts of pilocarpine hydrochloride and zinc chloride did dissolve clear. Equal parts of cocaine hydrochloride and zinc chloride did not dissolve clear, without the addition of ammonium chloride; boric acid likewise carried the mixture into solution. Ammonium chloride produced clear solutions when zinc chloride was brought together with morphine sulphate and atropine sulphate.

CONCLUSIONS.

Our conclusions from this mass of experiments and words may be summed up in short as follows: the separation of zinc oxychloride when zinc chloride is dissolved in water is always accompanied by liberation of free hydrochloric acid which remains in the solution; at the same time a loss of zinc is experienced. Both of these objections may be overcome in solutions up to approximately twenty grains to the ounce by the use of boric acid, weight for weight of zinc chloride taken. For solutions exceeding this strength, or for any strength, ammonium

chloride in quantity of not less than one-fifth of the amount of zinc chloride used, will insure complete and permanent solution. Camphor water will dissolve a few grains of zinc chloride per ounce. Carbonic acid water may be employed if intended for immediate use. And finally the comparative ease with which a minute quantity of either boric acid or ammonium chloride prevents a precipitate as against the larger quantity needed to redissolve oxychloride once formed may be impressed upon our minds by the wisdom of the maxim: "An ounce of prevention is worth a pound of cure."

THE MANUFACTURE OF ASPIRIN TABLETS.*

BY ROBERT C. WHITE.

The data presented by the author are based on his investigations of Aspirin tablets of American manufacturers, including also the original Aspirin tablet. No report is made on the content of aspirin, but only of the tests involving the physical operation of making the tablets. The author states that manufacturers are constantly improving their product and as the tablets reported on are of different dates of manufacture, no names of manufacturers are given and the tablets are referred to by number. The table following has been prepared from Doctor White's report in order to condense this matter; that which follows thereafter is printed from the original.—EDITOR.

The manufacture of Aspirin tablets may be placed in what is considered by manufacturers the "delicate" group. Many things coming in contact with aspirin can exercise either physical or chemical function, and so either contaminate or break down the aspirin content. In the manufacture of any tablet there are several important features to which the manufacturers give considerable atten-

EXAMINATION OF ASPIRIN TABLETS.

| Quality, description and composition | Sample No. 1. Examined May 1918. | Sample No. 2. From eastern manufacturer Examined May 1918 | Sample No. 3. From eastern manufacturer. Examined June 1918 |
|--------------------------------------|----------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------|
| Appearance..... | Poor | Fair | Poor |
| Color..... | Good | Fair | Dark |
| Die..... | Satisfactory | Poor | Good |
| Punch..... | Poorly engraved | Plain | Very poor |
| Monogram..... | Indistinct | None | Poor, engraving worn |
| Carrying Qualities.... | Very poor | Good | Poor |
| Disintegration..... | Good | Good | Fair |
| Disintegration Agent.. | Evidently potato starch | Potato starch | Corn starch |
| Uniformity of Weight. | Poor | Average, good | Poor |
| Maximum Weight.... | 7.3 | 6.4 | 7.7 |
| Minimum Weight.... | 4.7 | 5.7 | 5.3 |
| Excipient..... | Weak starch paste | Weak gum solution | Gelatin solution |
| Other Filler..... | Corn starch | Corn starch | Corn Starch |
| Lubricants..... | Oil, none. | Oil, small amount Talcum, large quantity | Oil, large quantity Talcum " " |
| Contamination..... | None | Iron | Bad. Evidently iron stains |
| Packing. | Fair | Poor and loose | Poor |

* From a paper read before Pennsylvania Pharmaceutical Association, 1918 meeting.

| Quality, description and composition. | Sample No. 4. From eastern manufacturer. Examined June, 1918. | Sample No. 5. From middle-west manufacturer. Examined June, 1918 | Sample No. 6. ¹ From middle-west manufacturer. Examined June, 1918. |
|---------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Appearance..... | Good | Good | Fair |
| Color..... | Very good | Good | Poor |
| Die..... | Good | Good | Badly worn |
| Punch..... | Plain, good | Plain, good | Plain, good |
| Monogram..... | None | None | None |
| Carrying Qualities.... | Good | Fair | Good |
| Disintegration..... | Good | Fair | Fair |
| Disintegration Agent.. | Potato starch | Potato starch | Corn starch |
| Uniformity of Weight.. | Good | Good | Poor |
| Maximum Weight..... | 6.2 | 6.4 | 6.6 |
| Minimum Weight..... | 5.9 | 5.7 | 5.3 |
| Excipient..... | White dextrin | Evidently tragacanth | Evidently gelatin or gelatin and gum acacia |
| Other Filler..... | Potato starch | Corn starch | Corn starch |
| Lubricants..... | Oil, none. Talcum $\frac{1}{8}$ grain | Oil, small quantity. Talcum, $\frac{1}{4}$ grain | Entirely too much oil. Talcum, very heavy |
| Contamination..... | None | None | With metal, apparent |
| Packing..... | Good, in glass only | In glass, good | Good |

Sample No. 7, examined June 1918: Purchased in a Washington, D. C. drugstore. Name of manufacturer could not be obtained. Had evidently been heated too long in drying, with apparent contamination. The edges were poor, and the tablets quite mottled as if too dark a shade of talcum had been used. This sample was so far outclassed by those of other manufacturers that it is of no interest whatever except that it tends to show that very poor workmanship in pharmaceutical products still is practised.

tion. The first desirable thing is to present in tablet form the chemical as nearly in its original condition as is possible. The second important thing is disintegration, though in the case of aspirin this is not vital as it takes, according to various authorities, about forty minutes for aspirin to become decomposed in the gastric fluids.² The next feature is to have present as little foreign ingredient as is possible. As we know, there are many tablets such as formin, potassium iodide, sodium chloride, sodium bicarbonate, potassium permanganate, sugar, etc., which if obtained in granular form of the proper size may be compressed without the use of any excipient, or binder, without the presence of any filler, and without the addition of any disintegrating agent whatever. The physical properties of aspirin are such that it is placed in a class of tablets known to some manufacturers as moist tablets. This class includes such tablets as quinine, acetanilid, etc., or tablets which can never be produced with a glass-like surface. The term moist in this case originated with the appearance of the tablet which no amount of blowing, or dusting will make entirely smooth. Such tablets, if great pressure is applied are inclined to cap, or on account of their sticky surface allow small particles to adhere to the punches, thus leaving dents in the surface of the tablet. This to the manufacturer is known as "picking," meaning that the punches pick off a small particle, leaving a cavity in the tablet. It will be readily seen from the physical properties of aspirin that it is necessary to have present a binder, or ex-

¹ Tablets on account of excessive pressure used in manufacture would not disintegrate speedily enough, yet their fracture was soft.

² (U. S. Dispensatory, 20th Edition.)

cient. Sugar has not proven satisfactory for this purpose, as sugar itself attracts moisture, and complicates the operating of a compressing machine. It must also be remembered that moisture decomposes aspirin, and its presence in large quantities is highly objectionable, therefore the excipient must be one that can be dried very readily and that, at a low temperature. Glucose, gelatin and tragacanth all fail to answer on account of their sticky and slow drying qualities. Honey would not answer, as its tendency is to darken white tablets, and the need of much filler makes it unsuitable. Water alone will not bind properly. Solution of acacia answers fairly well, but both starch paste and acacia are lacking in making a fine aspirin tablet. It will, therefore, be found that a weak solution of white dextrine in combination with a filler of starch answers better than any other excipient for producing a mass of aspirin for proper granulation. It might here be explained for the information of the uninitiated that except in extremely rare cases it is never possible to compress powders of fine degree, but that granules must be built up from the powder.

Another feature involved in the preparing of an aspirin mass or mixture is that it must not be exposed to contamination from metals. From the samples examined it is evident that some of these have been manufactured in the ordinary iron mixers, or if granite-ware containers have been used, the surface has not been perfect, and iron has been exposed. If this is not the case the moist mass, before drying, has evidently been forced through a brass or an iron screen, which has produced contamination and resultant discoloration. In this particular product the writer has found nothing more satisfactory than the mixing of the aspirin ingredients in a special wooden tub made of maple. The operator may mix the dry ingredients through a properly protected powder mixer, but the addition of the dextrine solution must be made in these wooden tubs, the operator wearing long rubber gloves. Care should be exercised in all cases that the minimum amount of moisture for the best results to be obtained shall be strictly adhered to. The finished mass taken from these wooden tubs should be forced very quickly through perfectly clean and well tinned screens, placed immediately in aluminum trays, and dried *in vacuo* at a temperature not exceeding 120° F.

It will be found if all these rules are observed to that aspirin may be dried in three or four hours. If during this time the aspirin has not been exposed to the air it will be found that the granulation, dry and ready for compression, is in proper condition to be placed on the presses. No oil should be added in the running of aspirin tablets unless absolutely necessary on account of weather conditions. It will be found that though on account of the absence of oil the sides of the tablets will not be bright and polished (due to the moist physical properties of the ingredients as was spoken of earlier) the edges will be sufficiently smooth for all purposes; and the absence of the oil (which would in time penetrate the tablet) will permit of a harder tablet.

A minimum amount of pure white talcum, not exceeding $\frac{1}{8}$ grain to the tablet must be used as otherwise picking on surface of the tablet will occur. If the engraving of monogram punches is very fine it will be necessary to increase this amount of talcum in order to prevent the material from sticking in the engraving. It should be borne in mind that talcum is objectionable in all cases and as little as possible should be used.

As speedy disintegration of all tablets is considered essential, a disintegrating agent must be used. Doubtless, known to many, potato starch is the disintegrating agent par excellence as it swells very rapidly and ruptures a tablet very quickly when it is introduced into aqueous solution.

The following criticisms in general might be based on the aspirin tablets at present supplied by all except one or two manufacturers: that many of them are off color, some having unquestionably been subjected to contamination. Corn starch has been used by many in preference to potato starch; the excipient used by some is also too heavy and too slow drying.

The nature of engraving used on such monogram punches as have been operated in making aspirin tablets is not of a proper make to use on tablets of such dusty physical appearance. Others through not using a proper disintegrating agent have compressed the tablets too hard which makes them too brittle for carrying. In other cases, to permit of speedy disintegration, insufficient pressure has been applied.

In behalf of the tablets examined, however, the writer would like to state that the disintegration in general has been exceptionally good, the discoloration only moderately bad, and that while the appearance of most of the tablets is poor, it is undoubtedly preferable to sacrifice physical appearance for efficacy in all cases and when all is said and done it is quite probable, too, that though these matters are of considerable importance to manufacturers, the retail druggist may be in a position to inform us that the public are not sufficiently educated in such details, and may prove to us that the poorest looking tablet is the best seller of all.

WHAT IS THE MEANING OF A DEGREE IN PHARMACY?*

BY L. E. SAYRE.

It will not be the aim of this paper to extol pharmaceutical degrees, or make a plea for their standardization or unification, but rather to suggest for consideration the importance of some questions indirectly associated with degrees.

The desirability of unification and standardization of degrees in pharmacy has been ably presented at former meetings of this Association by prominent members and instructors in pharmacy. Professor McGill, of Nashville in 1904¹ very ably set forth what was then considered as needed to bring about greater uniformity. It may be in place to review briefly his paper. His statistics were gleaned from 48 schools and colleges of pharmacy. He found among these institutions the following degrees conferred: Graduate in Pharmacy, Bachelor of Pharmacy, Master of Pharmacy, Doctor of (or in) Pharmacy, Bachelor of Science in Pharmacy and Master of Science in Pharmacy. To show the lack of uniformity he cited statistics to show that the degree of Ph.G. was conferred for work ranging from 40 to 72 weeks. Greater uniformity was found to exist in the requirements leading to the degree of Ph.C., but in the Bachelor of Pharmacy, Master of Pharmacy and Doctor of Pharmacy much incongruity existed. For

*Read before Section on Education and Legislation, A. Ph. A., Chicago Meeting, 1918.

¹ Proceedings A. Ph. A., 1904, p. 115.

example, the title of Doctor of Pharmacy in two cases required five years' study and presentation of satisfactory thesis and one case where 2 years' work was required after taking Ph.C. degree, or one year after taking the Ph.M. degree, while the title of Doctor of Pharmacy was conferred by two schools as their only degree, presumably for the regular two years' course.

Doctor McGill remarks "It will not be many years before no reputable college will dare to confer the degree of Bachelor or Doctor upon a candidate who has not taken the baccalaureate degree," or its equivalent.

Last winter, at a meeting of the Association, representing the institutions of higher learning, a motion was offered to be acted on at a later meeting—which, in substance, is intended to discourage and even prevent the recognition of academic degrees for work below that generally recognized as requisite for the baccalaureate degree. Doctor McGill, thirteen years ago at the annual meeting of this Association, deplored the fact that these degrees in pharmacy were sometimes conferred upon some who had not even a high school education and when professional training was limited to a short course in a few branches of science pertaining to pharmacy. He asks: "How does the world regard this practice?" The answer of the academic world seems to be fairly well crystallized in the action proposed to be taken by the association referred to.

Twenty years ago there was some agitation favoring the title of Doctor for the pharmacist but making this worthy of recognition by adequate training through a proper curriculum. H. R. Slack¹ suggested that this would elevate the standing of the pharmacist as well as the teaching of the profession. Mrs. Mallory Taylor aptly says that the old proverb: "People will live up to their clothes" is applicable; their mental and moral barometer will rise and fall accordingly. She advocates a professional suit for the pharmacist. She gave her impression of her professional status when she said, speaking as a druggist: "We belong to the threadbare class." These sentiments expressed twenty years ago by one from the ranks of the practical druggists, are considered by some of the same class of to-day, as sentiments characteristic of the "theoretical harp stringers" or "the scientific flute players"—otherwise called "professors." Be this as it may we are thankful for the many who have still high respect for the calling and have the courage, against odds, to make every effort to elevate it.

College degrees have an important bearing and meaning to the student, his instructors and others interested in him and his calling. Some eminent educators have said that it would be a good thing if we could abolish college degrees altogether; if we could have knowledge and training sought for its own sake rather than the prize supposed to be embodied, or inherent in prize, but it appears that we have to take human nature as we find it. In student life there are at least two incentives—the knowledge itself and the prize which we name the degree conferred. Of the two incentives the former, to the ideal student, is the chief incentive, the latter quite subordinate. The magic influence enveloped in the idea of degree may be accounted for partly in its historical connection. Academic scholarship as early as the 13th century, was rewarded by the conferring of honorary degrees. A body of statutes was adopted for the University of Paris wherein the term Bachelor,

¹ Proc. Am. Pharm. Assoc., 1897, p. 356.

Master, and Doctor has appropriate recognition, standardization and restriction. The underlying motive in these statutes, succinctly stated, being the upbuilding of civilization through training and scholarship, which were, in a measure, standardized, an effort to accomplish this was stimulated. These motives and these ideas in the 20th century still cling to the meaning as well as the purpose of degrees. Pharmacists have appropriated and practically applied this time-honored method of stimulating scholarship as evidenced in the numerous schools and colleges which have been established through their combined efforts, the vitalizing factor in the whole system being the advancement of scientific pharmacy. The result has been that we have a wide distribution of pharmacists who have been not only well trained but who have the true scientific spirit—pharmacists of whom the professions—medicine and pharmacy, as well as the public, may well be proud.

But it is a fact to be deplored that there has grown up, beside this scientific spirit, an opposing one, one that has been characterized as the modern spirit in pharmacy, the extreme advocates of which would do away with schools, degrees and all restrictions, would even dispense with the drug store itself except for exploitation—merely using its name for trade purposes, as if pharmacy had no rights that should be respected. A gentleman, interested in medicine and in pharmacy as well, said to me that these modern stores, masquerading as pharmacies, would soon put the real pharmacist out of business if the pharmaceutical profession did not protect itself against the invasion. It seems to me that we have come to a time when not only the pharmacist should be standardized but also the drug store. That is, in addition to demanding a definite professional training on the part of the pharmacist, the public, by law should demand a certain minimum of equipment in the way of stock, apparatus and prescribe and define the conditions under which alone the dispensing of drugs can be safe and accurate, such as character and quantity of stock, cleanliness, care of apparatus, etc., etc. In this direction in some countries legislation has gone so far in detail as to require that a licensed drug store must possess, for instance, "a balance that will have a delicacy that would turn by the weight of a milligramme. It was only through some very meager restriction of this sort that Kansas through legislation was able to drive out the saloon keepers masquerading as druggists—the stock of a drug store was defined, to protect the real from the spurious. I do not mean of course that, in order to meet requirements such as to protect the good name of pharmacy the druggist must needs renounce "side-lines" and "sundries"—those in which he may find scope for his business ability and enterprise, but while he may have free scope here let him, if he attempts to perform the service of a pharmacist, do so with a show of equipment, at least, and display some respect due the vocation of pharmacy.

The medical profession, partly through outside pressure, has had new life breathed into it by having a higher professional standard urged upon it. It is needless to say that practitioners of medicine welcomed this outside pressure through the Carnegie Institution, and pharmacy might well invoke this same assistance to bring about a better respect for itself. Our colleges and schools must have the courage to blaze the trail. It would be fine, indeed, if we could broaden our minimum college courses, taking systematic courses in bacteriology and biology for example, which are becoming more and more necessary, adding another year of 40 weeks as Ann Arbor has done to the pharmacy course.

I have pointed out that there are those in our own ranks who would abolish the drug store except for the purpose of exploitation. There lurks in other quarters, without our company to-day a small, influential, honest, but totally misinformed class of medical men who would go so far as to abolish pharmacy altogether. Modern medicine, they claim, has so little of medical therapy in it that the drug store, especially the modern type, is entirely superfluous in our communities. To them pharmacy is synonymous with ignorance and humbuggery. Pharmacy schools give only smatterings in their courses; little value, if any, is attached to the name of pharmacy. This class doubtless is one among those who are opposing the recognition of a pharmaceutical corps in the Army. Of course these medical men forget, if they ever knew, that all that is modern and worth while in therapeutics to-day, even the small part they find themselves compelled to employ in their practice is not the product of medical men themselves, but very largely indeed of pharmacists, chemists, and scientists not connected with the practice of medicine. Who but the pharmacist, directly or indirectly, has evolved the numberless concentrated principles, biological products, the hyperdermic tablet, suppository, the glass pearls, gelatin capsules, the sterile syringe, to say nothing of a host of other remedial agents and their standardizations practitioners employ?

Pharmaceutical research—its direct and indirect bearing upon Medical Science, needs to be put forward! Medical men need to be told that all that belongs to Medicine has not originated with them or the profession they represent. We need young men of high degrees of scholarship to speak for pharmacy. As Mr. Hendrick says of the chemical profession—"It needs to be properly advertised!" We need young men trained to make valuable contributions to the healing art and to show that all creative art and skill does not reside in the one profession. It takes men well trained to do this—to drive the lesson home that we may guard what is justly ours. The college degree is surely one of the means to this end.

One of our prominent pharmacists, in a recent article, seems impatient of our schools that teach so much science, and that they pay so little attention to the fact that the druggist "has to pay his rent" and only once in a while has to figure out the difference between an atom and an atomizer. If such an implied pessimistic view of pharmacy should prevail, pharmacy might wisely agree to abandon degrees, and all restriction, and surrender itself completely to department stores, then there would be no meaning to, nor any more need for a degree for the pharmacist than for the grocer's clerk.

If the aim of this paper, wandering as it is, has not been made quite clear, that aim may be stated in a short closing paragraph.

Nothing portrays more keenly the spirit of pharmacy than those who reflect this spirit in word and deed. What are we doing to create and uphold the proper spirit? Any one who cynically criticizes the profession of pharmacy is doing his bit in chanting what may end in the requiem of that profession. We are thankful for constructive builders, for those who are eager to help in building our time-honored profession. Some do not know how, but do not oppose, nor indulge in the foolish pastime of trying to minimize or even nullify the work of those who are active in constructive effort. May the efforts of the latter grow less and less apparent.

THE CHEMICAL LABORATORY. SIDE LIGHTS IN ITS MAKING.*

BY FREDERIC E. NIECE.

Prior to the present conflict, there hung in the Louvre at Paris an interesting picture, depicting in a most realistic fashion an alchemist at work in his sixteenth century laboratory.

The painting portrays a low, dingy basement, showing furnaces arranged here and there, which have in later years been transformed into our modern vapor chambers.

On the floor, scattered about this aged creature, may be seen many crude looking implements of the time. Closer observation reveals some worn-out alembics, charred and time-worn crucibles, scarred and battered retorts, mortars, pestles, and whatnot. Suspended from the ceiling one may see huge specimens, representative of prehistoric times. Huddled about the strange, old, gray-haired figure is a group of intensely interested students. Their facial expressions and inclining attitude foretell amazement, as they watch each move the decrepit exponent of alchemy makes. Their attention seems to be completely absorbed as they appear to listen with the closest order to each word the old man utters in explanation of each step in the obscure process which, as they hope, will lead to the creation of the proverbial "philosopher's stone:" the "ancient stone" to which is alleged the ever ready power(?) to transmute the baser metals into gold—the noblest of all the noble metals.

It also appears that he is divulging to this select few, with the greatest minutia, the secret involved in the search for that "Priceless Elixir" with eternal virtues that are so conducive to that much envied desire of "long life."

The entire make-up of the picture is one of absorbing interest and seeming seclusion, for apparently there is no desire to publicity, as the old, bent-over creature, in his own manner goes on with his vivid portrayal as to how it shall all come to pass. But as centuries have come and gone we have earned to realize how vain have been his hopes but how fruitful have become his efforts.

Too true has this since become, for it was upon this very crumb of an ill-founded tradition and mistaken belief that the foundation of a most wonderful institution was first laid—an institution small and poorly conceived in its beginning, but large, spacious and indispensable in its completion.

Thus we can picture in our mind's eye, if we will, the inception and creation of our modern chemical and pharmaceutical laboratory, embodying as it were a series of trials and tribulations by reason of its associations with misguided theories—a struggle for existence in the face of a most fantastical opposition; and its triumph, because of its proven virtues in spite of the most adverse circumstances. In a measure the labors of these early workers were not entirely all in vain. No, for aside from their ignorance, superstition and lack of proper training, their reward has been great, for they gave the laboratory its impetus and to-day we find it a most powerful factor in both our scientific and commercial worlds.

The very thirst for knowledge by these poorly advised creatures was the making of all that the present-day laboratory implies.

* Presented to the Section on Historical Pharmacy, A. Ph. A., Atlantic City meeting

Many of the results, as we have studied them, from the dark ages up to and through more recent centuries, have changed but little, while years of toil may appear to have resulted in the waste of time, the loss of money and the sacrifice of patience, have, by persistency of purpose, turned impending failure into lasting success, notwithstanding the hardships attending the efforts.

How true this is can be no better realized than in the experiments of Archimedes over two centuries before Christ. His method of detecting metals by their specific gravities has not changed in principle, only in application. So we may gainsay, that these earlier workers and the workers of the middle ages left a soil so fertile that those who took up the tilling where they left off gave us as a result much good ground in which to develop our own abilities. By virtue of all this there was born out of it many whose lives have been guiding stars in the firmament of experimental research, an inestimable heritage of scientific wealth.

Take for instance the immortal Justus von Liebig; the great investigator, Davy; the ill-fated Lavoisier; Dalton, of atomic theory; Bunsen, Wöhler, of organic chemistry fame; Priestly, the discoverer of oxygen; Cavendish, of hydrogen; Ramsay, of metal transmutation fame; and the Curies, with their discoveries in radio-activity; Pasteur, Ehrlich and others,—all of these and many others were little thought of, much less their achievements, until their efforts were confirmed in the physical or chemical laboratory and the results thereto thoroughly established and thus given to the world. To the laboratory of whatever purpose, we owe much for that which it has done it has done well. It has been instrumental in not only revolutionizing industry but creating many new ones. It has caused a better people, a greater nation and a safer world.

Liebig, in addressing the British Association for the Advancement of Science, in 1852, said:

"One of the most remarkable features of modern times is the combination of large numbers of individuals representing the whole intelligence of nations, for the express purpose of advancing science by their united efforts of learning its progress, and of communicating new discoveries. The formation of such associations is of itself an evidence that they were needed. It is not every one who is called by his situation in life to assist in extending the bounds of science; but all mankind have a claim to the blessings and benefits which accrue from its earliest cultivation. The foundation of scientific institutions is an acknowledgment of these benefits and this acknowledgment proceeding from whole nations may be considered as the triumph of mind over empiricism. Innumerable are the aids afforded to the means of life to manufacture and to commerce by the truths which assiduous and active inquirers have discovered and rendered capable of practical application. But it is not the mere practical utility of these truths which is of importance. Their influence upon mental culture is most beneficial and the views acquired by the knowledge of them enable the mind to recognize in the phenomena of nature, proofs of an infinite wisdom for the unfathomable profundity of which language has no expression."

But let us now reflect a bit and learn a little of laboratory appointments and surroundings during a time when some of the epoch-making discoveries were formulated. Strange to state, the conditions of our earlier laboratories were deplorable even up to the latter part of the last century.

A number of the greatest scientific achievements have been attended with the crudest form of laboratory equipments imaginable, and under the most trying circumstances.

Perhaps this condition of affairs was largely responsible for their successful development.

A few interesting episodes in this connection taken at random from many sources will clearly show to what extent it was necessary to go in order to accomplish that which the investigator set out to do.

The early day scientists had no easy road to success, for they toiled in rooms and shops far from luxuriance and accommodations.

The earliest record we have of chemical laboratories is that found in the days of the Egyptian Pharaohs, where the temples had adjacent buildings presumably for chemical operations, since the hieroglyphics found written on the walls of these buildings point to the use of assaying, coloring and annealing processes.

Sir Robert Boyle, the father of modern chemistry, while investigating the "elasticity of gases," and who developed the law which now bears his name, used a tube of such length that he could not conveniently employ it in his laboratory room. He was therefore compelled to continue his delicate experiments by the use of the stairs in the same building.

It is also given from reliable sources that Newton performed all of his work on the "resolution of the light rays" in his lodgings at Cambridge. Our own but immortal Franklin, it is said, did most of his work at home by putting up insulated rods, seizing every chance he could to apply his tests when the air was heavily charged with electricity.

With Berzelius, who gave us many shining lights, matters appeared to be very homelike, for it is common talk that he carried on most of his experiments in the kitchen of his home where, it has been said, "cooking and chemistry went on together."

In the year 1824, Justus von Liebig, the founder of the modern chemical laboratory, established his laboratory at the University of Giessen. Its description was that of an old, dilapidated wooden structure, which was given him for the purpose of performing his experiments. Here he carried on his researches and taught students at the same time.

In this manner the question of agriculture was successfully given a scientific basis. The value of his labors has never been fully appreciated but perhaps realized for the wonders it has worked in the interest of crop productions. With Lord Kelvin things seemed to have improved but very little; for many years his laboratory was an old unoccupied wine cellar in one of the old university buildings at Glasgow.

In Lord Kelvin's physical laboratory experiments were conducted which made possible the laying of the Atlantic cable.

Claude Bernard, who has been termed by many "the prince of experimenters," toiled daily in an old damp cellar, one of those wretched Parisian substitutes for a laboratory which existed even up to but a few years ago in some remote places. Bernard gave it the appropriate calling of "The Tombs of Scientific Investigators." The case of Gay-Lussac was very much the same, and in some respects both serious and yet comical. Gay-Lussac conceived the idea of wearing wooden shoes to protect his feet from the dampness of the cold ground. It is reported that he suffered severely with rheumatism, hence this novel means to enable him to continue his experiments without discomfort. It was Gay-Lussac who gave us Liebig.

This is a fairly good taste of scientific research under difficulties and reveals

a most worthy example of persistency that is beyond comparison. Such characters must have surely loved their work for there can be no doubt but what Gay-Lussac did. In a few unappointed, squalid rooms in Berlin, we are told, that H. G. Magnus taught and performed experiments to students from whence came such geniuses as the great Helmholtz and the famous Tyndall, the one-time railway engineer but later on a student under Bunsen.

At the *Ecole Normale*, situated in the *Rue d'Ulm*, just in the rear of the Pantheon, Paris, in close proximity to the Sorbonne, in a small one-story building, Pasteur made some of his famous discoveries. At first he had only one small room, but the place grew with his achievements until he occupied the entire building.

Dr. Roux, famous for his discovery of diphtheritic anti-toxin, did some of his best work in a very small room in the same building. He had not as much as a fireplace with which to add warmth and comfort to his surroundings.

Another was Louis Thuillier, after whom Rue Louis Thuillier was named. Though only a student, his bacteriological researches in the same building made him famous and caused a tablet to be erected in his memory for the self-sacrifice he made in the cholera epidemic in Alexandria. This unpretentious building containing, as it did, the laboratories of such great men, was given the name of "The Mecca of Bacteriologists."

Thus we have a reflection of the evolution of the laboratory in another direction.

In a once private dwelling two rooms were set aside as a laboratory at Heidelberg in the year 1846, by Prof. P. G. Jolly. Here was laid the cornerstone of the more modern laboratory. It grew in size and enlarged in accommodations to such an extent under the supervision of Bunsen and Kirchhoff that their wonderful observations with the spectrum was thereby made a possibility.

One of the more recent cases and strangest of all was that of the Curies, who worked on radium. It has been given in print that the Curies developed radium and studied its properties under the greatest difficulties. The laboratory of Pierre Curie was situated in the school where he taught physics—"a small, single room, an inconvenient workshop and extremely unsuited for serious investigations, in fact almost unusable."

At the school of physics and industrial chemistry, where all of his researches on radium were made, "the installation was a miserable one, consisting of barracks made of boards loaned by the city of Paris." "The room used for physical experiments was smoky, low, dark, moist and cold." "It had none of the conveniences necessary for carrying out delicate experiments and had no plant for furnishing electric energy, heat or high temperatures." "As for the chemical laboratory that was more than ancient."

"In the large glazed shed there was to be found two plain modern tables for holding flasks, capsules and furnaces. On these tables all chemical operations were performed. There was no hood to carry away vapors, and every time there was a chemical reaction the room was filled with fumes that made the air irrespirable, so poor was the ventilation."

Lastly, Curie had no laboratory assistant other than his ambitious wife, who was before her marriage to Prof. Curie, Marie Sklodowska, a Polish girl, who shared with him in the greatest of all recent chemical discoveries, that of radium.

I am advised that only a few years ago was there much improvement in their laboratory surroundings, but owing to the importance of their discovery, the University of Paris enriched its laboratory equipment by installing more modern appliances.

As a reward to this noble little woman, the University of Paris tendered her the chair of radio-activity, which she accepted and, by the way, is the only professorship in that institution occupied by a woman.

In 1903 she shared with her husband half the amount of the Noble Prize awarded for work in physics. A few years later she was personally awarded the full prize for her work in chemistry. The research and experimental laboratory has grown to wonderful proportions within recent years, both on this and the other side.

Every institution of learning, regardless of the size, has some form of laboratory equipment connected with it. On the other side the laboratory constitutes one of the most important divisions of any institution needful of one, be it educational or industrial. Switzerland is not a very rich country, comparatively speaking, but Zurich boasts of its laboratories that have cost over 4,000,000 francs.

Germany's physico-technical laboratories, to which Werner Sieman has himself subscribed several hundred thousand dollars, are perhaps the most complete in the world. These were established in the fall of 1887.

In this connection consider the most beneficent gifts of Mr. John D. Rockefeller, of this country, to that of the research laboratories which bear his name. The Institute for Medical Research, under the able direction of Dr. Simon Flexner, is truly an institute of laboratories, to which Mr. Rockefeller has already given upwards of \$12,500,000, which makes it the most thoroughly appointed institution of its kind in the world.

Editorially the *New York World* had this compliment to pay with reference to this most amply endowed medical institute:

"The achievements of the scientists engaged in its work had already made it one of the most useful and most famous. Some of them, indeed, have by their discoveries so advanced the sum of human knowledge concerning the causes and the nature of diseases as to have gained rank among the foremost of the age. It is therefore not merely wealth but science and genius and keen discerning labor that Mr. Rockefeller has by this disposal of a portion of his fortune placed at the service of human suffering."

The various laboratories of Cooper Union, New York City, where the penniless but ambitious boy, native or alien, has an equal chance for a scientific education with that of the richer in paid institutions, was made possible by the keen farsightedness of its benefactor, Mr. Peter Cooper.

This is the only institution of its kind in America, and perhaps the entire world, that came into existence and accomplished so much under circumstances most unusual.

Cooper Union maintains a high standard of education, which is advancing yearly. It occupies very expensive realty quarters and is independently supported. All of this has been amply provided for by its founder, Mr. Cooper. Its chemical laboratories alone are modern and spacious, completely equipped and efficiently managed by a corps of experienced instructors, many of whom have risen from the ranks.

From a small beginning the laboratories have grown to very large proportions, and during the last ten years have undergone many notable changes, so that to-day the chemical department stands as a most unique part of the entire institution, which is unsurpassed by any other of a similar nature.

Information leading to laboratory knowledge in chemistry, botany, physics and the biological sciences, is now being taught by mail by the extension department of the University of Chicago.

The laboratories at Glasgow now occupy palatial quarters in the new building of the university, where great prominence is given them.

The new medical laboratories of the University of Pennsylvania, costing over a half million dollars, are marvels to behold. Likewise, the various laboratories of Columbia and Johns Hopkins Universities are most modern and up-to-date.

Conceive the vastness of the laboratory forces of the United States Government as it concerns its Department of Agriculture alone, with over fifteen separate and distinct departments all equipped with laboratory facilities of the very best.

Take that of the Bureau of Chemistry and that of the Animal Industry alone. These are truly wonderful and powerful agencies in the world's economics.

A few others, like the Bureau of Standards, the Hygienic Laboratory of the U. S. Public Health Service, with its tributaries reaching into all parts of the United States. By its creation America has been immensely enriched, and its work conducive to a more healthy nation.

This, too, was not without its bitter trials, for as late as 1901 Congress approved a paltry sum of \$35,000 for a new building for the laboratory on a site in the old naval observatory grounds at Washington.

Even fire and life insurance companies have been specially equipped with testing laboratories. Every asylum, sanatorium and health resort has its laboratory of some sort.

Deprive the various State agricultural experimental stations, the State and municipal boards of health, hospitals and clinics, the medical, pharmacal, dental, electrical and mechanical institutions of their research laboratories and you will then have destroyed the elements of their usefulness.

No private, public or academic institution of learning can dispense with its laboratory outfit.

Industries of every description feel and see the need of specialized laboratory equipments.

More recently, growing out of the European conflict, the United States Government has had in the course of formation one great research and experimental laboratory for the U. S. Navy, which will have a series of chemical, physical, electrical, mechanical and explosive laboratories. The cost of erection is to be \$5,000,000, with an annual expenditure of a little over half the above amount.

The University College of London, realizing chemistry's importance in the future prosperity of the nation, has just completed the construction of a new chemical laboratory that will surpass in equipment anything of a like nature in the entire world. From this alone we are to understand that the research laboratory has become a strong factor in the industrial and economic relations of the universe. What a wonderful picture this would reveal to our old friend, the alchemist, if he were permitted just for a moment to observe its present vastness. What

would be his reply at just receiving a mere peep at the advancements and accomplishments growing out of his efforts these last few decades. Surely he would be amazed into speechlessness.

So we may pay homage to the toilers of alchemy of the "dark ages."

Praise them for their persistency and their desires, hopes and failures, for in a manner we may perceive how the mighty oak of our present laboratory has sprung up out of an acorn of ignorance and superstition.

And yet less than half has been accomplished.

HOW PHARMACISTS' WIVES MAY BE OF SERVICE TO THEIR COUNTRY.*

BY MRS. D. F. JONES.

We all love our country and how gladly have we responded to its call to do our bit, even if there are over twenty patriotic organizations for us to join, each one with an appeal we find hard to resist, we can only live one day at a time to produce the work required, and we must not become discouraged because we cannot accomplish everything.

The Red Cross work should come first in interesting pharmacists' wives, not only because of its close relation to the work of the pharmacist but for the alleviation of suffering at large. Money is most needed for this work, for the work must go on and we must aid in this labor of mercy, not only with money but time and effort as well. The article by Ex-President Taft in the June (1917) number of the *Ladies Home Journal* describes the object and work of the Red Cross so well that it is not necessary for me to repeat it, as everyone should be familiar with the work by this time.

I know of no other class of women more helpful than pharmacists' wives in times of peace, so I feel sure they are responding quickly to the rigid requirements of war. This World's War has made it both fashionable and patriotic to practice thrift which means making the best possible use of all we have in time, money, energy and material, and not trying to spend more of anything than we have. The slice of bread stares us in the face like an ogre and to see it wasted is a kitchen calamity. It would be a greater calamity if we served this same slice of bread once too often, for whatever we do in keeping war away from our borders, we must never let it creep over the threshold of our homes.

Because of our great excess of food we have become extravagant so we are admonished before throwing anything away to stop and ask ourselves the question: "Can it be used in my home or some other home?"

We, as women, are not in a position to play a large part in the actual fighting, but we can play a most consequential part in caring for those who fight for us and for their women and children. This we can do in our own homes and by encouraging and helping others to do so. We must aid the poorer classes in learning conservation, and I am glad we have societies organized to help the people of all classes to aid themselves. It is wonderful how quickly women have responded to this great call to service, and how efficient they have become in all phases of

* Read before Women's Section, A. Ph. A., Indianapolis meeting, 1917.

work formerly done by men. Think of 25,000 women in France working on the railroads cleaning coaches and clambering over engines; and their bosses say their work is done quicker, better, and in a more cheerful manner than the men ever did it.

The Government of France has opened the technical schools for their women and has been an encouragement in every way, while the women of England have been discouraged by that Government and have only received help through private firms. Nothing daunted, they have compelled recognition, for England is a world of women in uniform, an army of nurses, messengers, porters, elevator hands, bank clerks, every place that men formerly occupied.

The women of Germany, so patient and stoical, starving in many communities, demand our praise and admiration. We can profit by their wonderful example and learn from their perfect system of handling these serious questions that are confronting them. They realize what war means and Red Cross work to them is serious business because they are constant witnesses of suffering.

One especially sad thing about the war is the Child Question. Crime amongst children has increased by a large percentage on account of neglect. And right here just a word about the children of our own country—our most vital resource. While the motherhood has been appealed to in women as never before by the pitiful tales of war orphans abroad, it is appalling to see and read of the neglect of children, not orphans, in cases right here at home. Mothers prompted by patriotic impulse cannot afford to spend their time away from home even for a patriotic reason when they cannot account for the doings of their own children. A timely suggestion has come from the Department of Education, that our Kindergartens, Elementary, and High Schools should run to their fullest capacity throughout the entire year. As the fathers are withdrawn from the home and the mothers enter the industrial field, home-life must inevitably be disturbed and home-care dangerously relaxed. To keep the schools open the entire year would be one of the most effective means of unavoidable domestic neglect.

Of course we, as pharmacists' wives, have always been in training, so we can adapt ourselves to unexpected calls on our time and energy. We have always been ready to take the place of the clerks, do the collecting, etc., in addition to home management and child raising, without the aid of servants; so if the call does come for loved ones to join the Pharmaceutical Corps we are ready to step nimbly into the harness and "pull for all we're worth." Meantime we are going to make home-life even more pleasant. We will look after the children, and if Sarah Tyson Rohrer does say it, we will serve something besides the "unsalted dish of rice" she advocates and prepare the appetizing meals our husbands always have liked and through it all use common sense with economy.

MRS. D. F. JONES,
WATERTOWN, S. D.

JOURNAL OF THE MODERN MERCHANDIZING.*

BY LOUIS K. LIGGETT.

In introducing his subject on Modern Merchandizing before the New York Branch of the American Pharmaceutical Association Mr. Liggett traced the history of Modern Merchandizing to John Wanamaker when he established the one-price system. He gave an account of the counter-action of druggists in Detroit to compete with a grocery firm that had added a drug department and established cut prices of patent medicines, by selecting a drug firm to compete with the latter; how the venture proved a fortunate one for the firm selected, Gray and Worcester, and the stimulus to larger sales in many drug stores. Fifteen years ago Mr. Liggett, said, there were not more than ten retail druggists who did a business of over \$100,000 annually and the adoption of modern merchandizing methods has been instrumental in the development. This brought the speaker to the consideration of service in modern merchandizing and the remainder of the address is given as reported.—EDITOR.

"Service to-day is a greater factor in getting volume than price. It is particularly so now and will be so for a considerable time to come, although I do not doubt but that when this unfortunate war is over and the natural depression comes in two or three or five years hence, price will probably then be a factor.

"At the present time Modern Merchandizing consists primarily of *service*. Service is not only in giving proper attention to customers and good salesmanship, but in addition may be defined by having merchandise in stock when your customer calls for it, plus your ability to see that you are not overstocking and that you are turning your stock as often as is expedient with keeping good merchandise in stock. That, to my mind, is the first principle of developing volume. You must back up service with advertisements, either window displays or newspaper advertising; you must back it with merchandizing ideas—advertising something that does not materially affect the drug store but brings people into your store. You can back it with any number of conceivable schemes for getting people into your store, some of which you will find can be overdone if you don't watch them closely, for almost all schemes for getting business simply mean that you are appealing in a novel way to the minds of the people, and you may over-play your hand before you get through. Nevertheless, all of these schemes do boom business.

"There is one other factor in getting volume, namely, location. You could put the most complete drug store, with the finest and best assortment of stock, over on Park Avenue, in back of the Grand Central Station a block or two, and you would starve to death in a few months, but if you put the same store on the corner of Broadway and 42nd St. you will prosper. To get volume you must go where the people are.

"Having started on the road to volume, your next point is to watch and see how much it costs to get that volume. If you are getting it by advertising ideas that are expensive, or by over-clerking your stores so as to render that so-called 'clerk service,' whether you are paying too high a price for the volume you are

* Parts of an address before New York Branch A. Ph. A.

getting, are all things that you have to think of, when the volume starts to come to you. I mention these because they all have an effect on gross profit and hence affect your net profit. Special drives also have an effect on gross profit. Gross profit, after all, is the difference between what you pay for an article and what you sell it for less the depreciation on the articles that you have on hand. You never know exactly what your gross profit is until you have inventoried your business so completely and so fairly in your own mind that there can be no question but that you have made the proper charge-off for your over-stock and your valueless stocks of merchandise.

"I might say right here that in our business of running retail drug stores the most valuable thing we have is the inventory system. We have volume, but it would mean nothing to us if it were not for the check we have on our merchandise. Five years ago not only the Riker business but the Liggett business was receiving in their banks each day from the stores only 95 cents on every dollar's worth of merchandise sold to customers. The other 5 cents was lost in one of three or four ways, either through theft, unreported breakage of merchandise, unreported transfers of merchandise or depreciated merchandise, merchandise that was valueless and was never found to be valueless until a careful analysis of the inventory of each store was taken. To-day operating under very close supervision our shortage average for the first nine months of this year was less than 6.7 of one percent. It means a difference to us in profits of considerably over a million and a quarter dollars at the present volume of business. So you will see there is something to the gross profit column besides establishing a selling price and considering what you patch on your bill.

"Your expenses and what they apply against are also a snare and delusion to the man who has not an accurate accounting system. Expenses to-day with the modern druggist are what I could liken to an instance fifteen years ago where a retail druggist in this city, who had a very large business and who was operating in connection with it a manufacturing plant and making his own goods. When asked by me what his goods cost him, how he arrived at his selling price said, that he takes every bill that comes in and figures the cost of an individual package, plus the cost of the bottle and the cork, etc., thus arriving at the selling price. I said, what do you do with your overhead expense? He replied that he didn't have any, that he charged all labor that is directly confined to the manufacturing against the cost; that he used his clerks to help out, to bring down stock and sometimes, if he had a wholesale order, he used the clerks in the retail stores, etc., etc.

"Many merchants are doing the same thing to-day—carrying a burden of expense that they are not charging to any department of their business.

"The other day a manufacturer of automobile bodies sent me a bill for \$28.00 for making a little leather cushion for my chauffeur's back. I asked him why he charged \$28.00 for it when I could buy the same thing for five or six dollars in any department store. (The manufacturer figured up the material and labor cost which came to about \$10.00, and the balance he explained was for overhead.) That fellow isn't very far off at all. He is doing an individual business and has a large overhead. He must have a lot of waste time in his plant. He undoubtedly is careless about his lights, etc. He apparently has had at sometime one of those 'efficiency men' checking up expenses of doing business.

"I brought this out to illustrate the fact that there are too many retailers and manufacturers in business who are going along figuring their expenses upon what they see set down. The true expense is the total of all items necessary in conducting a retail drug store—labor, rent, light, heat, clerk service, janitor service, window trim, the purchase of signs, or the newspaper advertising done, paper, twine, glassware at soda fountain, and so on, through the numerous things which total the expense. There is not one druggist in a hundred in this country who gets a total together yearly and looks it squarely in the face to see just what his position is, and he ought to do it monthly.

THE INVENTORY.

"I am president of a Fire Insurance Company and it is almost a daily, and I know it is a weekly occurrence, to have a fire in a customer's store, where we find that no inventory had been taken since the man started in business, or else he did inventory on the 31st of last December to the 10th of January, all the time doing business, which means that they didn't get an exact inventory. This is an almost daily occurrence. It is a different thing, as I have found from experience, to have your own store managers and clerks take inventory and have it right. We never got a correct inventory until we established inventory crews and actually shut down business while the inventory is being taken and then adjust the inventory to the amount of merchandise sent into that particular department. Until we did this we did not get at the 5 percent.

"Now these are just a few of the rudiments that have brought about modern merchandising. With these have come the development of the chain stores. The one-price system started by Wanamaker brought the one-price system to the Atlantic and Pacific Tea Company, with its tremendous developments. It extended to the 5 and 10 cent stores and from that it went to the cigar stores, then it went to the numerous grocery stores and now into the drug stores. These, of course, are the larger chains.

"The chain store system has been said to be a fallacy. A student of merchandising told me that the chain stores were doomed to fail; that they could not possibly succeed because they would break of their own weight. Now my personal experience is quite the contrary. The more weight you have, the more you have to work with. The stronger the organization, the more men you have to gather around you from whom you can select those who are to carry out your plans. Their development is only limited by the ability to secure the men to see the proposition through.

"Therein again modern merchandising is doing a world of good. It isn't always the man who is the most ethical or has the most complete knowledge of the drug store that makes the best success in operating a retail drug store. It is the man who is most capable of handling and getting from those working with him all the good in them. I do not mean all the hours of work, but all the ability. One who can shift his help around until he has a smooth working organization.

(Mr. Liggett then told of a visit to a western city to see why a certain store was falling down. Upon entering the store he found that the manager was out, and the assistant, when he found who his visitor was, greeted him in a loose, careless fashion, which explained the loss of business, namely, lack of back-bone in the store.)

"So you see that modern merchandising has got to take into consideration the human element.

PERSONALITY IN BUSINESS.

In answer to a question as to whether personality played an important part in competition, Mt. Liggett said:

"It is contended that the chain stores are such severe competition that the retailers are driven out of business. Four and two-tenths percent of the failures have been found to be due to competitive methods and 34 percent due to lack of business management on the part of the retailer. In the largest development of chain stores personality is worth a great deal in the drug business. It goes back to the question of service, the question of training the retailer gives his clerks, his standing in the community, etc., and attention to his trade. It doesn't always imply, as some people think, that they cannot be too friendly with their customers because they will ask to be trusted, but simply means a fixed principle of doing business, and that establishes personality as much or more than any one thing. There is no doubt about the fact that where personality dominates in a community that the chain store has the hardest kind of competition to overcome."

OVERHEAD EXPENSES.

Regarding overhead charges and the percentage cost of doing business, he said:

"These varied with the condition of the business. We have stores in New England that make 31-32 percent gross profit. We have stores in New York City that will make 37 percent gross profit. We also have stores in Toronto, Ontario, that make 22-23 percent gross profit. Expense accounts run in the neighborhood of 20 to 30 percent. In New England States, where gross profit is low, we have a very large volume of cigar business which is handled on a very low margin of profit. Drug stores have had control and still have control of the retail cigar business in New England. Larger cigar stores do not exist in New England like in New York. We average in cigar business somewhere in the neighborhood of 9 percent, but sometimes it runs 20 and 25 percent of the volume and with so large a volume on a small profit it pulls down the total gross profit. Why is it higher in New York? Because we have less cigar business, and more soda business, which has a larger profit. In the final net profit of a store it does not matter if we have a low margin in New England or a high margin in New York because where we have a high gross profit it costs us 16 percent to clerk a soda fountain and it cost us 4 percent to 5 percent to clerk a cigar counter in New England. Therefore you can see where you find a larger margin of gross profit you invariably find an increase in expense. If you take an average in the entire United States you will find the gross profit of the retail druggists in the neighborhood of 35 percent, and let me say right here, it is going down, down, right along. A recent analysis of the Pharmaceutical Department of the United Drug Company proves this. We found, after investigation, that a druggist in Atlanta was getting 60 cents for a 4-oz. prescription as an average price. After going over a period of five years we found that he now filled the same prescription at an average of 50 cents. Notwithstanding the fact that the cost of the ingredients has advanced, they are getting less for the prescription.

"The expenses of the retail druggists in this country will show between 26 and 27 percent of their sales and this does not include the question of investment and interest charges which we take into consideration in the chain stores. It does not include depreciation. One percent per month of the investment should be charged to depreciation and unless this is done the merchant is fooling himself. The retail merchant should speed up turnovers as fast as volume goes up. One of our drug stores turns its investment fifty-two times a year. Everyone should have a schedule of turn-overs for each department in the store.

"In the question of buying, more men go broke when over-buying than those who under-buy. It does not pay any man to buy any more than is necessary to operate his store. Four times a year is the least number of turn-overs you should consider.

"It pays you to take care of windows well and never put in a window display without the price on every article of merchandise."

Mr. Liggett explained that the chain stores did a great deal in bringing back the sundry and toilet goods business to the drug store, which had been gradually slipping away from them.

Mr. Liggett said, "that the one-cent-sale idea was started in 1914 during a period of business depression, and was the result of efforts to hold volume; that there is nothing in the world that will add to the inventory like a one-cent-sale and at the same time it is one of the biggest business boosters he had ever come in contact with, and productive of good returns if run occasionally."

MODERN DRUG STORE ADVERTISING.

BY H. P. HYNSON.

The following address was delivered before North Carolina Pharmaceutical Association several years ago. It is just as applicable to-day as then and presents the subject of Modern Drug Store Advertising from a pharmacist's viewpoint and valuation. While it has been the intention to print the address before now, the opportunity did not present itself as it does for this issue of the JOURNAL, wherein an article on a related subject appears.—EDITOR.

"The shortest comprehensive definition of the word 'advertise' is: 'To divert or direct the attention.' The calling and holding of favorable attention is good advertising. The calling and holding of unfavorable attention is bad advertising; many of us are doing both unconsciously.

"Let me assure you that the very best advertising, especially in the retail drug business, is done without a trace of color or a drop of printer's ink. I believe that great harm may be done and much money wasted by the injudicious use of illustration and printing. Practicing cleanliness, order, system, true aesthetics, consideration, truth and honesty is the kind of advertising in the drug business that brings best results at the smallest cost. I could better tell you what I mean, I believe, by quoting freely from a recent address on this subject by Mr. J. Thomas Lyons, Advertising Manager of the *Baltimore News*, one of the leading dailies of this country. I was greatly encouraged to find that Mr. Lyons set forth my exact views upon this subject, as can be shown by the agreement of

his expressions with my own policies and practices during my business career, including now some thirty-four years. I read from Mr. Lyons' address as follows:

"Advertising does not necessarily mean bill boards, street cars, newspapers, blank walls, circulars, programs, letters, or any one specific thing, but advertising means anything that attracts the attention of one person or of a million people to your business or to you personally as the proprietor of that business, and if the retail druggist could only realize that almost every waking hour he is advertising or mis-advertising his business, he would pay some attention to the importance of correct advertising.

"If an efficient man were to be called by a neighborhood druggist and told to do what he could to increase the profits of the business, the first step, no doubt, would be to see if three or four dollars in white paint would not be a good advertisement in the druggist's window. If there was anything about the exterior of the building that might create the impression in the mind of the passer-by that carelessness and slipshod methods prevailed within, that condition would have to be corrected.

"The interior of your store often has an unconscious influence, either favorable or unfavorable, on the prospective customer, and you can not get correct store atmosphere unless the things therein are right."

"Advertising begins with the personnel of any business enterprise, beginning with the proprietor and his assistants, then all down the line to the porter and errand boy. In a recent address on the teaching of commercial pharmacy, I tried to set forth what a commercialist should present in his person and I had in mind such a person as would at once and most effectively advertise the enterprise with which he might be connected. One so equipped could render attractive service and service is what is desired by the world to-day, as I have styled it in a late advertisement of my own: Satisfying supply service—service you need, to secure Antitoxins, Vaccines, Serums, Bacterines, Oxygen, Normal Salt Solution, Infusion Apparatus, Camphorated Oil Ampules and other emergency requirements.

"I will take the liberty of reading some extracts which will describe the personal qualification of the pharmacist that makes the very best advertising matter, taken from the address to which I have just referred:

"The personality of the pharmacist, or of one who purposes to become a pharmacist, is of much importance. While pharmacy is a vocation requiring no great physical strength or power, it does require a considerable amount of endurance and, because the hours of attendance upon duty are comparatively long and because most of the time devoted to business is, necessarily, spent indoors, it is not the proper engagement for those predisposed to tubercular trouble or those with anemic tendencies. It is a business suited neither to a deformed nor to a crippled person; quick, well-ordered movements are required and extraordinary control and use of the hands and fingers are necessary.

"As successful salesmanship is an important qualification of the pharmacist and since the personality of the salesman has much to do with his success, appearance, or address, as it is more politely called, must be seriously thought about, much thought about. One can not, of course, change his features, neither can he materially alter his size, but there are some defects which may be overcome, by thoughtful and determined effort; rounded shoulders may be corrected by similar effort, assisted by braces; an awkward, ungainly gait or slovenly carriage may be easily changed."

"Much of the same character might be said regarding personal cleanliness, dressing, manner and style of speech, and the proper training of the mind for commercial purposes. If a proprietor appreciates the value of personal attractiveness and possesses this strong advertising power, he will, naturally, seek such at-

tractions in his assistants. Much good money spent in advertising goes to waste, because of the fact that customers brought to the store are not pleased and held as customers because of the character of clerk that waits upon them. It may be thought by some of you that this is foreign to the subject under consideration, but I believe that many pharmacists fail to win success largely because they are not careful enough regarding the appearance, intellectuality and dispositions of their employees. Again, I repeat that attractive, pleasing personalities rendering efficient, satisfying service, are the most profitable advertisements a drug store can use. Service is the key-note of good business to-day. Service is the real inspiration of Rotary, that remarkable and fast-growing organization now numbering more than twenty-five thousand alert commercialists, who unite in believing that golden rule practice is the best advertising and that following the motto, 'He profits most who serves best,' will sell the goods.

"It is an old story that I bring you regarding directly-unpaid-for service as an advertising feature, but I would fail in my duty toward my audience if I did not emphasize the help it has been to me in establishing and maintaining a fairly profitable business. This directly-unpaid-for service must be rendered with as much grace and good feeling as that which wins the highest remuneration, otherwise it will be the veriest boomerang. If you sell stamps, keep all that will be called for and of every variety on hand and sell them with eagerness. It will pay you, even if you have to borrow the money, to use one or two hundred dollars, or as much as is required, for the purpose of keeping change for the accommodation of all who seek the favor. No expense should be spared in supplying directories and all such other appliances as will be helpful to those who may become or are your customers. Beginning with an ordinary pair of scales on which people could weight themselves, we have developed this feature until we now have a pair of scales which cost us \$210.00 and we believe this is the best advertising investment we have ever made. Not only do people come in and appreciate the character of these scales, but physicians from many parts of the town send their patients to our store to be weighed. There are, in different neighborhoods, many other services that may be rendered. The suggestion of Mr. Lyons that a rolling chair be kept to be loaned, for short periods, to invalids in the neighborhood, and especially to be used in the removal of patients, is an unusually good opportunity to make an impression both upon physicians and the laity.

"No matter how attractive and efficient the personality of an establishment may be, it cannot, however, render the service that will make particularly fine advertising, unless it has the proper place in which to give such service. It must also have ample equipment.

"Often before a possible customer can ascertain what service you have to offer or see those who are to supply it, the possible customer is advertised away from both by the uninviting exterior or surroundings of the store. How is a stranger to know that you are the most capable and intelligent pharmacist in town or that you have the best and largest stock and employ the most attractive and agreeable assistants, if the building, the show windows and the signs, all positively tell him that such is not the case? How is he to know that you conduct your business in a serious and dignified manner when your windows and signs tell him that you are catering only to the frivolous, the gay and the ignorant? Does

he read that yours is a high class pharmacy carrying dignified side lines and, incidentally, supplying 'thirst quenchers?' Look at your signs, my good friends, and see what you are most prominently advertising, generally in impressive green or glaring red. Thousands and thousands of pharmacists in this country have sold their most valuable birthright in advertising for a very poor mess of pottage.

"Infrequent circulars, small spaces in the newspapers, counting these as good advertising, are as nothing compared with the very extensive space you are giving on the exterior walls of your building, in your show windows, on the interior walls of your store, in your fixtures, by the disarranged aspect of your stock, by the unkept, uncleanly condition of your store, to very, very bad advertising.

"Ruskin has given the world the seven great lamps of architecture, and architecture is most serviceable, and most enduring, when these seven lamps are allowed to brightly burn. As leading to the proper construction, arrangement and appearance of a drug store, I would use four of Ruskin's lamps, the lamp of 'Truth,' the lamp of 'Beauty,' the lamp of 'Power' (scope), and the lamp of 'Life' (energy). To these, I would add a lamp of Appropriateness, a lamp of Consistency and a lamp of Modesty. With these seven lamps leading me, I would have a store, in truth, just what it pretends to be; it would be truly beautiful, it would be large enough in which to do business acceptably, it would be a lively, fresh-looking place, and it would be well suited for such a business; it would be consistent in all parts; the prescription department and equipment would be quite as complete and as attractive as the soda fountain and its ceiling would not be more ornate than its floor covering. With all, it would be modest and not over-pretentious for the neighborhood in which it was located or for the customers who would patronize it. It would not make me, my clerks, and my little stock look like thirty cents. A store so conforming to the lamps mentioned would, of itself, be worth all it cost as an advertisement; I mean, it would do more and better advertising than could be possibly done by the expenditure, annually, of six percent of its cost, a fair interest on the investment, if such an amount were spent, even judiciously, in printer's ink.

"Too much attention cannot be called to the advertising worth, the pulling power of the appearance of things. This applies to building, to front, to windows, to fixtures, to appointments, to arrangement of stock, to business stationery, labels, and especially to containers, regarding their appropriateness and quality, and to packages and their wrapping. All these can be made most useful in establishing, enlarging and holding business.

"Color and color harmony give so many of us great restlessness, if our state of mind is as much disturbed as is our adjustment of colors. The selection of colors, wherever colors may be used, is a momentous question and, when you are in the least doubt regarding appropriateness of colors, or the blending of these, no matter for what purpose they may be intended, you are solemnly advised to 'play trumps,' that is, use none at all and resort to black and white.

"Considering the good or bad advertising effects, one should never be too sure that his taste, as to the appearance of things, is just what it should be. I have seen labels used by druggists who thought they were particularly attractive, which did violence to every principle of appropriateness and good taste.

"Considering all the advertising I have ever done for our retail business, and I have spent much time, thought and money in this direction, I believe the most profitable and helpful of all has been the attention given to the appearances of packages going out of our stores. No expense or effort has been spared to make them just as attractive and as pleasing as possible. It is a fact that many of the best and most profitable customers of drug stores, after years of patronage, have never seen either the proprietor or the store. These must be favorably influenced by the appearance of the packages and the service that is supplied.

"All advertising, whether the kind I have been describing, or the more generally recognized kind, is of no possible avail, if you do not have in stock the right kind of goods in sufficient quantities, properly marked, and conveniently and attractively arranged. If you ask me what next to the appearance of our packages I think has been the most profitable advertising, I would answer, without hesitation, the use of standardized galenicals. I began using these as soon as they were put on the market, about 1885, and have been using them ever since, and we have never, to my knowledge, had a single complaint about the activity of our alkaloidal preparations, but much more to our gratification, we have had many, many favorable commendations upon the uniform action of these products. And so, with every other class of goods, it is the standard or standardized product that will give most satisfaction to your customer and to yourself. The extra price paid for these goods might very justly be charged to the advertising account. 'The best,' is what the physician and the people want from a drug store. Let them get cheap and unreliable stuff elsewhere. The druggist should not fail to take advantage of the opportunity to advertise himself and in the very best and most lasting manner, by supplying goods that cannot be criticised, no matter what he may be compelled to pay for them.

"Possessing the personality I have indicated, with a store, equipment and stock such as I have described, imbued with the desire to render fair, honest service, do you think you would have any trouble in telling those who might be led to deal with you the advantages of giving you their patronage? Advertising as generally understood, in my opinion, consists of frank, open statements, consists in telling the truth regarding yourself, the service you have to render and the goods you have to sell. In every instance, I believe there should be the stamp of individuality upon the advertisement; it should be characteristic of the man and of his particular business. It is worse than useless to use other people's methods or another's combination of words, because they do not fit your case. Some one who knows, really knows, what is to be advertised, should frame the advertisement. It may be that the text, the wording, should be supervised, yet I believe that a man is not sufficiently well prepared to enter the drug business, in this age, if he is not able, himself, to write profitable advertisements. Should it happen that he does not consider himself personally able to attend to this part of the business, I feel safe in advising him to give to it enough time, study and money to become sufficiently accomplished in this line, to meet his own requirements.

"I would especially warn against the use of those familiar drug store cards, which invariably begin with 'Pure Drugs and Chemicals,' and, as invariably, contain the assurance that 'Prescriptions are accurately compounded.' As a slight

variation, it may read: 'Prescriptions compounded with accuracy and dispatch,' when we all know they should be prepared with mortars and pestles, spatulas and elbow grease. Advertisements, to be helpful, must have some specific purpose and should, if possible, make an impression regarding a specific fact in connection with the business advertised. It is a good principle to begin with a general phrase or heading that will interest almost everyone and then gradually draw the attention to yourself and your business or to some one thing that you wish to present. The funnel illustrates what I mean, you begin with a large opening and gradually draw the attention of the possible customer down to the apex or neck of the funnel and then through it into your store with a definite object in view. For example: 'Some day—Yes! Some day, you may be ill and need a druggist.' 'Decide now, where you will go when you have a prescription to be filled.'

"As Mr. Lyons has aptly stated, 'The average neighborhood druggist can not advertise in newspapers profitably because he pays for the total circulation of the paper, and can hardly cash in on more than 5 percent of the circulation.' He also says: 'Many druggists have tried to build up a telephone business, but this has often proved disastrous, because the cost of delivery takes the profit from the sale.' If the drug store is not centrally located, it is unprofitable for it to go after business outside of its own neighborhood, because of the extra cost of delivery. If newspaper advertisements are used, preferred space ought to be selected. It is much more profitable to use a small amount of expensive space than it is to buy a section in a position that will attract no attention. Advertisements, in daily papers, should, in my opinion, be changed each day, and I think in weekly county papers they should be changed with each issue of the paper. Not much should be said; only pointed facts should be brought out.

"The practice of sending out cheap circulars has a tendency to cheapen the store in the estimation of those seeing them lying around. It is much better to get up a small number of expensive circulars and see that they are directly delivered to the possible customer. I am clearly of the opinion that, no matter what the location of the drug store or the character of the customers may be, there must be a certain amount of dignity and tone about its advertisements. All that I have said about appropriateness and colors should be applied to the advertising matter issued by pharmacists. Especially should the construction be grammatically correct and refinement in expression should be, consistently, a characteristic. Catchy phrases are desirable, of course, but these should not be used at the expense of good English or of reasonable dignity. It is a very serious question whether profuse advertising of the drug business to the laity pays or does not pay. I believe that the advertising of some side-line at a time, or the advertising of a special feature, by proper circulars, could be made to pay.

"I have no doubt but that the plan I have used of advertising continually and persistently to physicians is the very best method of building up a real drug business. It is a character of advertising that requires very great care and the possibility of overdoing it or misdoing it should always be kept in mind. There are many things that can be sent physicians which will remind them of the sender; these should, however, frankly appear as advertisements; they should not imply an obligation, but they should be of a character which will insure their use and

preservation. Cheap prescription blanks, unattractive blotters or useless publications are really harmful. One must know the needs of a physician and must try to supply these needs in a manner that will be acceptable to the receiver."

In concluding and summarizing, the speaker said:

"I believe to advertise successfully, one must have something to tell, must have something good to tell, and must really believe he has something to tell that will benefit those he desires to serve. If then, he will tell his story earnestly, enthusiastically, and, above all things, truthfully, he will be able to do advertising that will bring profit to himself and give satisfaction to those upon whom it has had effect."

THE NEED OF QUALIFIED PHARMACEUTICAL SERVICE FOR THE AMERICAN SOLDIERS IN THE UNITED STATES ARMY.*

BY FRANK CAIN, M.D.

As the great war continues we grow increasingly conscious of the enormous task before us in providing for the immediate health and safety of the American soldier, which is equivalent to the ultimate salvation of all of us. For the army and the navy are the bulwarks that stand between us and the horrors of servitude. Democracy must trust everything to her sturdy sons hastening to the field of battle. But if this is so we must do all that lies in our power to keep them sturdy and capable of defending us. Already in a thousand directions keen minds are at work with this end in view and constructive legislation is creating the conditions for its realization.

The movement in favor of Pharmaceutical Army Corps is one phase in this general tendency toward constructive national legislation and achievement. To the expert or careful student of such matters, the value and meaning of qualified pharmaceutical service in winning the war is obvious. To the general public, consisting of laymen, even to the educated laymen, this value is not so clear. There are even members of Congress who oppose the Edmonds bill (which authorizes the creation of such corps) on the plea that they are unnecessary; that medicine in handy tablet form can be dealt out by any one. But their standpoint is still that of the laymen and consists largely of mental snapshots taken at the corner drug store or the village apothecary's.

Their knowledge of the pharmacist and his work is frequently merely impressionistic, and uncritical or rather superficially critical, and it may even be drawn from an acquaintance with the pharmacist's employees; the boy at the soda fountain, for instance. It is always unsafe, however, and likewise unjust to judge the finished product by the raw material alone—to estimate the trained pharmacist by the potential druggist. The public is also liable to misinterpret the motive of the pharmacist, in seeking recognition in the Army, believing this to be selfish personal interest, an error which we trust we may be able to dispel.

* Read by the author at the Lloyd Library, Cincinnati, Ohio, June 18, 1918, before official representatives of the Cincinnati Branch of the American Pharmaceutical Association, Ohio State Medical Association, Ohio Branch of the National Pharmaceutical Service Association, Ohio Valley Druggists' Association, Ohio State Pharmaceutical Association, representative citizens and the Drug Clerks' Association.

All this being admitted, we must therefore conduct an educational campaign, nation-wide in its extent in order to convince the public that Pharmaceutical Army Corps are necessary. And we are certain that once the public is shown the facts, it will demand what it has hitherto viewed with indifference or even been unaware of. For the American public, as a thousand testimonials from press, pulpit and every source of popular expression prove, is absolutely sure that there is nothing too good for the boys in khaki "over there," whether it be books to read, food to eat, or medical care for the sick and wounded.

The public then wishes to know why Pharmaceutical Army Corps are desirable. Taking up the question first from the standpoint of abstract justice to the individual pharmacist, we find that he has spent many years in preparing for his profession. Such a man will be efficient, only if placed at his own work. The spirit of efficiency which is coming to guide us in all our activities, dictates that each man be in his proper place, and the general rule covers the particular instance. It should apply to the pharmacist as to the engineer, physician and all others. Again, the pharmacist or student of pharmacy has in addition to his years of apprenticeship spent other years in institutions bestowing a scientific training in his profession. He is, or ought to be, somewhat of an expert in many branches of science. He must be a chemist, physicist, botanist, and an expert in crude and refined drugs, as well as poisons. Is all this training and ability to be thrown away? Would it not be better employed in actively serving the Government?

The ideal of Democracy, in opposition to Autocracy, with its crushing of the individual, is personality in the members that compose it—the ideal of the fullest realization of the powers and capacities of the individual in their appropriate objects. And in his ideal is the promise not only of justice to the individual but of the maximum of social efficiency.

Social efficiency—this after all is the keynote of our desire for the recognition of pharmacy, and the institution of pharmaceutical army corps. Social efficiency to-day means national efficiency, the first prerequisite to the success of the United States in this war, and the safety of the world which hangs in the balance. We could waive all questions of individual justice for pharmacists. The pharmacist has but one desire and that is to serve America. He is willing to serve in any capacity if need be. Letters from pharmacists now serving in the ranks of the United States Army are eloquent testimonies to this fact. All unite in their spirit of eagerness to serve the country with mop and broom, it may be, or with rifle and bayonet at the fighting lines, to the end that Kaisercism may be defeated forever. Nevertheless, they express regret at not being able to contribute their particular skill and training in the interests of their comrades' welfare. What wonder if amid so many expressions of pure altruism, a note of personal chagrin creeps in at times, because in the majority of cases the pharmacist is assigned to some duty which has no relation whatever to his profession. While at the same time the dispensary at the very Post at which he is stationed, may be under the supervision of one who is not a pharmacist.

Thus the pharmacist in the Army feels that it is good to serve Uncle Sam in any case, but that it would be much better to be able to serve efficiently. This means in the first place to serve in his chosen line where he knows that he can "deliver the goods" and that no one else can satisfactorily fill his place and, in

the second place, it means actual service as a pharmacist at the front with the fighting men. This would also be justice to all, for after all, Plato's conception of justice as each class performing its special task, each man minding his own business, in a word, performance by those best adapted to perform is as true to-day as it ever was.

Thus from the point of view both of individual and social justice, the pharmacist deserves recognition as a distinct and valuable unit in our fighting forces. We have dwelt briefly on the greater efficiency thus attainable, but it may be well to develop the point.

Success in war is no longer only a matter of courage in the soldiery or strategy and skill on the part of the commanders, or the possession of deadly instruments of warfare, or of all these things combined. Wars are no longer mere contests between the public armed forces of belligerent peoples, while the masses of people on either side look on, more or less passively, or are indifferent, like the philosopher Hegel writing his learned treatises while the guns at the battle of Jena thundered in the distance. To-day entire nations are mobilized against one another. All of the material and spiritual resources of a country must be pooled and organized to successfully resist the foe. It is a contest of efficiency and of morale which is in part at least the result of the consciousness of efficiency.

Now efficiency depends upon division of labor. Historically, increasing division of labor has accompanied progress in civilization and civilization is a function of efficiency in living. The primitive horde in which every man was a "Jack of all Trades" and provided for all his own wants, gave way to the tribe where the arrow-maker, the chipper of flints, the man-lecturer of nets, and the medicine man began to specialize on certain phases of the general activity, and so foreshadow a future period of universal mutual dependency, and reciprocal service. All through the classic and medieval periods, division of labor increased and reached its maximum in our modern industrial age of machinery. To-day there are innumerable vocations and professions, each boasting its experts and within each is a sub-division or redivision of labor, so that in such a profession as medicine, for example, there is a multitude of specialists of every kind. This minute division of labor is what makes modern medicine so efficient in contrast with that of the past. Each specialist is enabled to assimilate and apply all there is to be learned in his particular branch.

What is true of the modern world, under the normal conditions of peace, is no less true under the abnormal conditions of war. In fact it is even more essential that each kind of service required should be performed in the speediest and best way—in short, by the man equipped for the specific task—the expert.

If one of these experts, say the physician or surgeon, be compelled to devote his attention to a variety of tasks instead of that for which he is peculiarly fitted, he is handicapped at the start. His best efforts are thwarted because he must scatter his shot. Yet this is just what happens if the physician or surgeon is forced to supervise, or attend to the pharmacist's work in addition to his own, as is the case at present in the United States Army.

Disease has been the deciding factor in many of the great campaigns in history, whether those of a Pharaoh in Egypt, a Hannibal or a Napoleon. It will be recalled that the army of the Assyrian when he "came down like a wolf on the

fold" was stricken by the "Angel of God" and decimated; in short, his army was so afflicted by disease that he was obliged to raise the siege for want of fighting men and succeeding centuries have witnessed similar disasters.

In modern times cases are recorded where regiments were exterminated before they could reach the seat of war, notably in the Crimean war, when in a single six months' campaign, of 50,000 men lost, but 2,000 died of bullets. Again, in the Madagascar campaign of the French in 1894, 7000 out of 14,000 men engaged, died of disease while but 29 men were killed in battle. In the American Civil War a little less than the proportion of 4 to 1 died from disease as against those slain on the battlefield. In the Spanish-American War the proportion was about 11 to 1, for the entire war, and 14 to 1 during the first 100 days. In the Franco-Prussian war, one man died from disease for every two slain in action, while in the Russo-Japanese war the oriental armies lost but one man from disease to every four killed on the firing line, the best record yet made and one attracting universal attention, which is proof of the great value of a scientifically organized medical department, which includes Pharmaceutical Corps.

To-day Germany claims that 87 percent of her wounded are returned to service, a fact which partly explains why Germany still has a huge army despite tremendous losses. The Germans have been fortunate enough to retain their own wounded as a rule, and these were generally restored to active service. The Allies must achieve the same results, in the treatment of sick and wounded, or our potential numerical superiority will not avail us in the struggle. Fortunately, however, our own record compares very favorably with that of the enemy. Surgeon General Gorgas recently announced that 80 percent of the American wounded will be restored and returned to service again, while only 10 percent will be permanently disabled. This shows that remarkable work has already been accomplished. But the fact that the whole burden of this great work is thrown upon the physicians and surgeons, results in a constantly increasing call for more doctors in the Army. A noted surgeon, Dr. McLain, speaking recently before the American Surgical Association, in Cincinnati, was quoted as saying that "every available doctor in the country might be called to military service before the present conflict ends." But it is clear that our success in the war would not be furthered by sending every physician abroad. Who would then care for the health of the workers at home? "We ought to have enough physicians to care for the Army's sick and wounded and for the really vital needs of the army and civilians at home at the same time.

It is plain that the doctors of the Army need and would welcome assistance, and what more welcome assistance could be afforded than that of an organized corps of competent pharmacists who, by relieving the doctor of numerous labors of preparation, analysis and supervision, would restore the normal division of labor to which he is accustomed and permit his concentrated attention to his specific task?

This arrangement, moreover, would have the further advantage of preserving and augmenting the pharmacist's professional skill, so that he would be a more efficient member of society upon his return to civil life after the war. The conservation of professional skill is a part of the general conservation of the country's resources. At present the reverse is true. The pharmacist who goes

to the trenches may have no opportunity for several years to practice pharmacy, or keep up with its progress. As a consequence, he is likely to come out of the war "a back number." The creation of new skill is always more difficult than the maintenance of what we already possess.

The arguments thus far advanced seem to us amply sufficient to convince any one that the pharmacist has a definite and necessary place in the U. S. Army. For the sake of completeness, however, we touch upon a few other points generally referred to but which bear repetition. In the first place, it cannot be too much emphasized, that laws in every state of the Union require legally accredited pharmacists to dispense drugs. Laymen are not permitted to do so lest the citizen of the commonwealth suffer thereby.

Shall those on whom the hope of the world depends—the soldiers of the United States Army have inferior service in this regard? There can be but one reply. Not inferior, but even superior, service if possible. The men and women at home would demand it if they conceived the problem clearly. The soldiers themselves have no time to ask it or even think about it. Their one thought is to give efficient service as soldiers. The motive of patriotism effaces self. But we who are at home can clearly see their needs, and it is our social, our patriotic, our Christian duty to provide for them.

In the second place, the dispensing of the numerous poisons specified in the official drug table of the U. S. Army—there are some 200 deadly poisons among them—must be in skilled hands. In a war with an unscrupulous enemy resorting to poison gases, and the poisoning of water supplies and food where possible, adequate knowledge of the treatment of poison by antidote and antagonists should be possessed by those dispensing drugs as well as army physicians.

Finally, the example of our European Allies, as well as that of our enemies, should impel us to the establishment of pharmaceutical army corps. Germany has a splendid organization of the kind, with military pharmacists of a number of orders of rank. We must fight fire with fire, like the pioneers of the western prairies, and match Germany at her own game, here as elsewhere. England and the United States who lag behind in this respect, must establish such corps to coöperate properly with their great French ally who considers their Pharmaceutical Corps indispensable.

If the reader finds himself wearied by what he may call truisms, or by re-statements of things he already knows or fancies he knows, let him remember that all good things bear repetition. It is only by repetition that we learn that most essential of all essentials in education, the letters of the alphabet. And the alphabet of the nation's needs, in which pharmaceutical army corps is one of the letters, like any other alphabet, must be thoroughly learned before we can spell out a speedy victory.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 19.

PHILADELPHIA, July 17, 1918.

To the Members of the Council:

Motions No. 27 (Investment in Liberty Bonds for A. Ph. A. Research Fund) and No. 28 (Election of Members; applications No. 205 to 247, inclusive) have each received a majority of affirmative votes.

Motion No. 29. (Election of Members). You are requested to vote on the following applications for membership:

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| <p>No. 248. William Arthur Schoen, Hill City, Minn., rec. by Wm. B. Day and J. W. England.</p> <p>No. 249. Anthony L. Ajello, 109 Carroll Street, Brooklyn, N. Y., rec. by H. V. Army and Hugo H. Schaefer.</p> <p>No. 250. Cornelius M. Judd, 615 So. Cutler Street, Rochester, Minn., rec. by Wm. B. Day and J. W. England.</p> <p>No. 251. William Peter Norris, 14 So. Sacramento Blvd., Chicago, Ill. Prize awarded by Central States College of Pharmacy for 1919. Rec. by Geo. L. Second and H. M. Whelpley.</p> <p>No. 252. Montaigu M. Sterling, 90 Beekman Street, New York N. Y., rec. by Rudolph Wirth and Robert C. Purcell.</p> <p>No. 253. Charles E. Cason, 3617 Word Street, Dallas, Texas., rec. by L. B. Mitchell and Wm. B. Day.</p> <p>No. 254. James R. Spivay, 103 S. Main Street, Bluffton, Ind., rec. by F. W. Meissner and Wm. B. Day.</p> <p>No. 255. Dante A. Giusti, 803 Wylie Ave., Pittsburg, Pa., rec. by J. A. Koch and F. J. Blumenschein.</p> <p>No. 256. Michael Francis McNerney, Ridge Ave., Sharpsville, Pa. Awarded the Darbaker Prize for highest grade in Pharmacognosy in Pittsburg College of Pharmacy. Rec. by J. A. Koch and L. K. Darbaker.</p> <p>No. 257. John H. Robertson, Duncansville, Pa. Awarded the Judd Prize for highest grade in Materia Medica in Pittsburg College of Pharmacy. Rec. by J. A. Koch and A. F. Judd.</p> | <p>No. 258. John Edwin Reed, 700 Main St., Gallitzin, Pa. Awarded the Prize for highest grade in Chemistry in Pittsburg College of Pharmacy. Rec. by J. A. Koch and F. J. Blumenschein.</p> <p>No. 259. Elwood Milton Keagy, 605 S. Pittsburg St., Connellsville, Pa. Awarded the Saalbach Prize for best set of pharmaceutical products in Pittsburg College of Pharmacy. Rec. by Louis Saalbach and J. A. Koch.</p> <p>No. 260. Philip Hoffman, California, Pa. Awarded the Saalbach Prize for highest grade in Pharmacy in Pittsburg College of Pharmacy. Rec. by Louis Saalbach and J. A. Koch.</p> <p>No. 261. Premananda Das, 38 Raja Nobo Kissen St., Calcutta, India., rec. by C. C. Glover and A. F. Schlichting.</p> <p>No. 262. Robert C. White, 23 North 7th St., Phila., Pa., rec. by Robert P. Fischelis and J. C. Peacock.</p> <p>No. 263. Clare O. Ewing, Bureau of Chemistry, Washington, D. C., rec. by W. W. Stockberger and E. C. Merrill.</p> <p>No. 264. Albert Albrecht, Port-Au-Prince, Haiti, c/o U. S. Marine Expeditionary Forces, c/o Postmaster, New York, N. Y., rec. by J. W. England and E. G. Eberle.</p> <p>No. 265. Myrtle M. Heden, Conrad, Mont. Awarded prize in School of Pharmacy of the University of Montana for Scholarship and Proficiency in Pharmacognosy. Rec. by Chas. E. Mollet and Alex. F. Peterson.</p> <p>No. 266. John D. Carmichael, Missoula, Mont. Awarded prize in School of Pharmacy of University of Montana for Scholarship and Proficiency in Manufacturing Pharmacy. Rec. by Alex. F. Peterson and Chas. E. Mollet.</p> <p>No. 267. Sara Eskin, 1517 N. 8th St., Phila., Pa., rec. by W. L. Cliffe and E. G. Eberle.</p> <p>No. 268. Anthony McGill, 317 Queen St., Ottawa, Canada, rec. by Henry Waters and E. G. Eberle.</p> |
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J. W. ENGLAND,

415 N. 33RD STREET.

Secretary.

A PH A COUNCIL LETTER NO. 20.

PHILADELPHIA, July 22, 1918.

To the Members of the Council:

*Motion No. 30 (Election of Members).—*You are requested to vote on the following applications for membership:

- No. 269. Willis Anthony Clark, Jr., Remlig, Texas, rec. by E. G. Eberle and C. A. Duncan.
- No. 270. G. E. Thompson, Chatham, Va., rec. by W. F. Rudd and Wm. B. Day.
- No. 271. John G. Ricketts, 323 No. Washington St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 272. Evan R. Owens, 345 E. Market St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 273. W. D. White, 12 Laning Bldg., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 274. J. R. Bennett, 169 Park Ave., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 275. H. S. Hufford, 109 Carey Ave., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 276. Leroy Berg, 122 Academy St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 277. Ellsworth Lynn, 312 Wyoming Ave., Kingston, Pa., rec. by Louis Frank and J. W. England.
- No. 278. W. B. Davis, 535 Main Street, Edwardsville, Pa., rec. by Louis Frank and J. W. England.
- No. 279. J. R. Hatten, 587 Main Street, Edwardsville, Pa., rec. by Louis Frank and J. W. England.
- No. 280. A. C. Haight, 124 Main Ave., Luzerne, Pa., rec. by Louis Frank and J. W. England.
- No. 281. A. H. Edwards, 201 Hughes St., Maltby, Pa., rec. by Louis Frank and J. W. England.
- No. 282. H. T. Gregory, 340 Wyoming Ave., Wyoming, Pa., rec. by Louis Frank and J. W. England.
- No. 283. Jos. D. Morgan, 236 Horton Street, Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 284. C. J. Gallagher, 323 Scott St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.

- No. 285. Marvin Shales, 382 No. Washington St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 286. Earl C. Henwood, 41 Gates St., Westmoor, Pa., rec. by Louis Frank and J. W. England.
- No. 287. P. W. Banker, 203 Pierce St., Kingston, Pa., rec. by Louis Frank and J. W. England.
- No. 288. George Norton, Dallas, Pa., R. D. No. 1, rec. by Louis Frank and J. W. England.
- No. 289. Norris Greenstein, 201 E. Market St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 290. Henry Bossert, 281 E. Market St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 291. W. E. Ryans, 1205 Wyoming Ave., Forty-Fort, Pa., rec. by Louis Frank and J. W. England.
- No. 292. W. J. Cott, 62 W. Main St., Miners Mills, Pa., rec. by Louis Frank and J. W. England.
- No. 293. W. J. Walters, 108 Dana St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 294. George W. Brown, 261 College Ave., Kingston, Pa., rec. by Louis Frank and J. W. England.
- No. 295. W. V. Green, 125 Academy St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 296. H. H. Swainbank, 82 South Main St., Wilkes-Barre, Pa., rec. by Louis Frank and J. W. England.
- No. 297. W. C. Hogan, Walton Cloud, Atkins Ark., rec. by Frank Schaebleiter and Wm. B. Day.
- No. 298. Peter Honorof, 36 W. 11th Ave., Gary, Ind., rec. by Wm. B. Day and F. W. Meissner, Jr.

The following communication has been received

"We, the undersigned, residents of Wilkes-Barre, Pa., and vicinity, hereby petition the Council of the American Pharmaceutical Association for permission to establish the Wilkes-Barre Branch of the American Pharmaceutical Association in accordance with the conditions specified in Chapter XII of the By-Laws of the Association (Year Book, 1916, XXXV):"

Louis Frank, 39 E. Market St., Wilkes-Barre, Pa.

- John G. Ricketts, 323 No. Washington St., Wilkes-Barre, Pa.
 Evan R. Owens, 345 E. Market St., Wilkes-Barre, Pa.
 W. D. White, 12 Landing Bldg., Wilkes-Barre, Pa.
 J. R. Bennett, 169 Park Ave., Wilkes-Barre, Pa.
 H. S. Hufford, 109 Carey Ave., Wilkes-Barre, Pa.
 Leroy Berg, 122 Academy St., Wilkes-Barre, Pa.
 Ellsworth Lynn, 312 Wyoming Ave., Kingston, Pa.
 W. B. Davis, 535 Main St., Edwardsville, Pa.
 J. R. Hatten, 587 Main St., Edwardsville, Pa.
 A. C. Haight, 124 Main Ave., Luzerne, Pa.
 A. H. Edwards, 291 Hughes St., Maltby, Pa.
 H. T. Gregory, 340 Wyoming Ave., Wyoming, Pa.
 Jos. D. Morgan, 236 Horton St., Wilkes-Barre, Pa.
 C. J. Gallagher, 328 Scott St., Wilkes-Barre, Pa.
 Marvin Shales, 382 No. Washington St., Wilkes-Barre, Pa.
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 W. J. Walters, 108 Dana St., Wilkes-Barre, Pa.
 George W. Brown, 261 College Ave., Kingston, Pa.
 W. V. Green, 125 Academy St., Wilkes-Barre, Pa.
 H. H. Swainbank, 82 South Main Street, Wilkes-Barre, Pa.
 All of the above petitioners (except Louis Frank) are not members of the Association, although they have applied for membership (Motion No. 30). Do you favor granting the above petition contingent upon the election of the non-member applicants to membership in the Association? This will be known as *Motion No. 31 (Granting of Petition to Establish Wilkes-Barre Branch, A. Ph. A.)*.
 J. W. ENGLAND, Secretary.

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON DRUG MARKET.*

The most impressive fact noted while studying the large amount of material presented by the various members of your Committee on Drug Market, is the excellent condition of drugs and chemicals in general. The committee is very fortunate in having access to the analytical files of laboratories that examine a wide variety of goods, so that on account of this privilege, it is able to give a comprehensive report of the conditions prevailing in the drug and chemical world. It is very gratifying to note the maintenance of the high standard of quality noticed in recent years and that goods of standard quality have been consistently offered for some years. Various articles from time to time fall off in quality but after a period of back-sliding they generally return to a normal condition.

The cases of wilful adulteration were few and as in recent years the most trouble has been caused by the ignorant and by those who use careless methods of manufacture. However, it is usually not difficult to obtain goods of standard quality but constant watchfulness is essential to guard against imposition by the unscrupulous and careless, who endeavor to dispose of adulterated or inferior goods. Those who follow analytical work appreciate the excellency of the U. S. P. standards and tests, as they are fair and render uniformity of results more probable thereby avoiding considerable contention regarding methods. These tests and standards reinforced by the rulings of Federal and State governments and the efforts of conscientious manufacturers and retail dealers are responsible for the present high standards of excellence. It is found also that the quality of chemicals formerly produced abroad, but now manufactured in this country, is excellent and it is gratifying to note the success of American chemists in their accomplishment of wresting from Germany the control of many lines of chemical industry

* Presented at 1918 meeting Pennsylvania Pharmaceutical Association.

As in former years, we found a number of substances which were only slightly inferior and were considered of acceptable quality, although not strictly equal to the standards. They often were low in strength but usually contained traces of harmless impurities. The number of rejected or decidedly inferior shipments and broker's samples was not excessive considering the fact that several thousand samples were examined by the workers of the various laboratories contributing to our report. There were about 90 in all, divided as follows: Chemicals, 42; drugs, 38; oils and fats, 8. Most of the drugs contained excess of stems, stones and earthy matter but usually the foreign matter could be removed and the shipment put in an acceptable condition.

As reported in the following pages, there were 8 substances subjected to adulterations, substitution or gross carelessness, for instance: Cottonseed oil was substituted for olive oil and tap water for lime water. A lot of belladonna root was adulterated with scopolia, and sugar with table salt. A shipment of citron essence was found to be oil of lemon, and a shipment of lithium benzoate was found to be barium hydrate. Several lots of storax were of very poor quality and had probably been deprived of their cinnamic acid and esters. One lot of rennin was only half strength and a lot of wild belladonna contained only a trace of alkaloids. Two shipments of diastase were only one-half strength and contained 50 percent of water-insoluble matter. Another shipment was three-fourths strength and contained 30 percent of water-insoluble matter.

The detection of these cases of gross inferiority, adulteration, and substitution emphasizes the necessity of close analytical control and examination, as it protects health, avoids waste of effort and material, insures uniformity of results and increases efficiency. This is particularly true at this time of war when all waste of any kind must be avoided in order to aid our country and its allies in their fight to maintain liberty at home and render it possible for oppressed peoples of other lands to obtain it in full measure.

The substances commented upon in the following pages have all been examined by practical and experienced workers during the period from June 1, 1917 to June 1, 1918 and have been taken from the files of the laboratories of H. K. Mulford & Co., Prof. Charles H. LaWall and Smith, Kline and French Co., who generously offer them for the benefit of the Pennsylvania Pharmaceutical Association in particular, and the whole pharmaceutical profession in general.

ACETIC ETHER: The only lot examined yielded a trifle more residue than is permitted by the U. S. P.

Reported by J. G. ROBERTS.

ACID, ACETIC: An instance of lack of uniformity in shipments was found in the case of a three-barrel lot of 80% acetic acid. The contents of one barrel was decidedly reddish, another had a slight yellow color, while the remaining one had a normal water-white appearance.

Reported by J. G. ROBERTS.

ACID, BENZOIC: A slight excess of chlorine was discovered in each of two lots which were otherwise of normal quality.

Reported by J. G. ROBERTS.

ACID, ACETYL SALICYLIC: One lot was rejected because of excessive free salicylic acid and perfumed odor.

Reported by G. EWE.

ACID, HYDROCHLORIC C. P.: One lot contained an excess of iron and free chlorine.

Reported by G. EWE.

ACID, SALICYLIC: During the past year this substance has not been quite as good as usual. Of the four lots examined only one was entirely satisfactory. One of the other three had an undesirable yellow color, a trace of phenol and was 0.44% low in strength; another was 0.55% low in strength and the remaining one was satisfactory except that it contained a trace of phenol.

ADEPS LANAÆ: Occasional lots have offensive odor.

Reported by G. EWE.

ADEPS LANAÆ (HYDROUS): One lot complied with the requirements of the U. S. P. and one lot was of very poor quality. It contained chlorides and excessive amounts of water, free acid and ash. It had a dark color, an alkaline ash and too high an iodine number. In fact it hardly complied with one of the U. S. P. requirements and was a very inferior product.

Reported by J. G. ROBERTS.

ADEPS LANAÆ (ANHYDROUS): One lot was of U. S. P. quality except that it had a low iodine value and contained slightly excessive amounts of ash and free acid. Another lot was entirely U. S. P., except its iodine value, which was only slightly below the U. S. P. minimum standard.

Reported by J. G. ROBERTS.

ALLSPICE: Three samples examined were all of normal quality.

Reported by C. H. LAWALL.

ALUM (POTASH): The rejection of one sample was recommended on account of its dirty color and the presence of pieces of wood and other foreign matter.

Reported by J. G. ROBERTS.

ARGOLS: A sample of white argols was found to contain about 84% of tartrates calculated as potassium bitartrate and a sample of red argols about 14%.

Reported by J. G. ROBERTS.

ASAFETIDA: One lot was found to contain rosin.

Reported by J. G. ROBERTS.

BELLADONNA LEAVES: Every shipment was of U. S. P. quality and contained 0.3% to 0.54% alkaloids.

Reported by J. G. ROBERTS.

BELLADONNA PLANT—WILD: A lot was examined which contained only traces of alkaloids.

Reported by C. GREEN.

BELLADONNA ROOT: One lot contained 11.64% of scopolia root. This lot did not conform to the U. S. P. requirement of not more than 10% of Belladonna stem bases or other foreign matter.

Reported by G. E'WE.

BELLADONNA STEMS: A sample was examined for academic interest only. It assayed 0.1443% mydriatic alkaloids.

Reported by C. GREEN.

BENZOIN, GUM: One lot contained only 59.5% alcohol-soluble matter whereas the U. S. P. requires 75%. The foreign matter consisted chiefly of wood.

Reported by N. SUTO.

BISMUTH SUBGALLATE: One lot contained an excess of sulphate.

Reported by J. RAHN.

BISMUTH TRIBROMOPHENOLATE: One lot was grayish yellow, assayed 62.1% Bi_2O_3 and possessed a strong odor of tri-brom-phenol. This was not satisfactory and was rejected.

Reported by G. E'WE.

BROOM TOPS: One lot contained 8% of stems.

Reported by G. E'WE.

CALCIUM CARBONATE—PRECIPITATED: Two of the five lots examined were not of U. S. P. quality. One was 4.3% low in strength and the other contained about 25 times more water-soluble material than is permitted by the U. S. P.

Reported by J. G. ROBERTS.

CALCIUM GLYCEROPHOSPHATE: One lot contained slight excess of chlorides and of sulphates.

Reported by J. RAHN.

CALCIUM OXIDE (MEDICINAL): One lot was rejected because it was air-slaked.

Reported by G. E'WE.

CAPSICUM: Fifteen samples examined were all of normal quality.

Reported by C. H. LAWALL.

CASCARILLA BARK: One lot offered was very poor. It contained excessive dirt and in addition some pebbles, shells, berries and nails. Another lot was practically devoid of odor.

Reported by G. E'WE.

CELERY SEED: Two lots yielded, respectively, 8.61% and 9.43% of ash which amounts are in excess of the U. S. P. limit of 8%, but within the U. S. Dept. of Agriculture standard of not more than 10%.

Reported by J. G. ROBERTS.

CELERY SEED: Five samples examined were all of good quality.

Reported by C. H. LAWALL.

CHARCOAL, ANIMAL (PURIFIED): One lot contained 6.9% ash. The U. S. P. VIII allowed only 4% ash.

Reported by F. KEENAN.

CHLOROFORM: A trace of free chlorine was found in one lot. Two other lots had specific gravities a little higher than the U. S. P. standard which fact was probably due to the absence of a requisite amount of alcohol.

Reported by J. G. ROBERTS.

CINCHONA, YELLOW (BRAZILIAN): Three lots assayed 1.73, 2.14 and 3.62% total alkaloids, respectively.

Reported by G. E'WE.

CINNAMON: All of the seven samples examined were satisfactory.

Reported by C. H. LAWALL.

"CITRON, ESS:" A sample, so labeled, was Oil of Lemon of U. S. P. quality.

Reported by S. DUBELL.

CLOVES: The six samples examined were of standard quality.

Reported by C. H. LAWALL.

COCOA: Twenty samples, all O. K. Two had the unusually low fat content of 12% but were normal in every other respect. Reported by C. H. LAWALL.

CODEINE SULPHATE: Two lots were a little yellow in color.

Reported by J. G. ROBERTS.

COLCHICINE: Two lots contained 12.35 and 13.4% respectively, of volatile matter at 100° C. The volatile matter consisted largely of chloroform. Colchicine should not lose more than 5% of its weight at 100° C. Reported by G. E'WE.

COPPER SULPHATE: The examination of a broker's sample showed the presence of a large excess of foreign metals. It appeared to be a good technical grade.

Reported by J. G. ROBERTS.

CORIANDER: Out of 8 samples examined, 3 were found to contain foreign starch (leguminous) from weed seeds not removed by cleaning. Reported by C. H. LAWALL.

CREOSOTE, BEECHWOOD: One was turbid in U. S. P. glycerin test.

Reported by S. DUBELL.

CREOSOTE, CARBONATE: One sample had a specific gravity slightly below the U. S. P. standard but was otherwise of U. S. P. quality. Reported by J. G. ROBERTS.

DAKIN'S SOLUTION: The examination of sixteen lots showed them to contain in 100 mls, 0.34 Gm. to 0.512 Gm. of chlorine, calculated as sodium hypochlorite. Five of them contained less than 0.45 Gm. which is considered as the minimum standard.

DAMIANA LEAVES: One lot was rejected because it contained a considerable proportion of pebbles. Another lot consisted practically entirely of stems.

Reported by G. E'WE.

DIASTASE: This sample was found to show only a little over $\frac{3}{4}$ of the U. S. P. starch digesting power. It was not soluble in water, as is required by the U. S. P. standard, but showed over 30% of insoluble matter which under the microscope was seen to be starch granules.

Reported by J. G. ROBERTS.

DIASTASE: Two samples were examined having about one-half the U. S. P. digestive power and containing about 50% insoluble matter, mainly starch. The samples consisted of powdered malt, in all probability.

Reported by C. H. LAWALL.

GALEGA: Two lots were rejected because of too much stems.

Reported by B. HOFFSTEIN.

GAMBIR: Some lots continue to come in in a soft mass condition due to excessive moisture whereas the U. S. P. requires Gambir to be dried to the friable stage.

Reported by G. E'WE.

GINGER: Six samples were all of good quality.

Reported by C. H. LAWALL.

GELATIN: Out of 10 samples of powdered gelatin examined, 5 were found to contain excessive amounts of sulphur dioxide and arsenic to the extent of over 2.5 parts to the million, also in excess.

Reported by C. H. LAWALL.

GLYCERIN: Most of the glycerin examined was of good quality. Two lots had specific gravities a little lower than the standard. One had a decided yellow color and contained more than the permissible amount of carbonizable impurities. Four lots were of U. S. P. quality in every respect.

Reported by J. G. ROBERTS.

HELLERORE: The only lot examined was found to contain 1.75% alkaloids.

Reported by J. G. ROBERTS.

HYOSCYAMUS: Not one of the lots examined was of U. S. P. quality. One broker's sample was not the U. S. P. variety. Three other shipments were deficient in alkaloids as they contained only 0.033% to 0.054% whereas the U. S. P. requires the presence of not less than 0.065%.

Reported by J. G. ROBERTS.

IPECAC: Both shipments received were of U. S. P. quality and yielded 2.28% and 1.84%, respectively, of alkaloids.

Reported by J. G. ROBERTS.

IPECAC STEMS: Two lots examined because of academic interest were found to contain 1.71% and 1.89%, respectively, of ether-soluble alkaloids.

Reported by C. GREEN.

IRON, REDUCED: Practically all of the reduced iron examined during the past year contained sulphides in excess of the U. S. P. allowance and some of the lots contained shining particles of iron suggesting the probability that ordinary powdered iron was present.

Reported by N. SUTO.

KINO: Two samples yielding the following results were examined:

| Sample. | O. | F. |
|------------------------------------|--------|--------|
| Appearance..... | Normal | Normal |
| Moisture..... | 14.45% | 14.31% |
| Ash..... | 2.04% | 4.92% |
| Proportion soluble in alcohol..... | 22.14% | 36.33% |

Neither of these samples was of U. S. P. quality as they contained more than 12% of moisture and did not yield 45% of alcohol-soluble matter as required by the U. S. P. Sample marked F also yielded 1.92% excess of ash.

Reported by J. G. ROBERTS.

KOLA NUT: Two lots contained 1.63% and 1.54%, respectively, of caffeine which are within the N. F. limit of not less than 1.5%.

Reported by J. G. ROBERTS.

LEAD ACETATE (POWDERED): This shipment was not of U. S. P. quality as it contained an excess of carbonate and was considerably effloresced. Its strength according to the U. S. P. method was found to be 93.53% whereas the U. S. P. maximum limit is 89.57% of anhydrous lead acetate.

Reported by J. G. ROBERTS.

LIQUOR CALCIS: One sample from a drug store giving it away free of charge, was found to be nothing but tap water.

Reported by C. H. LAWALL.

LITHIUM BENZOATE: A sample, so labeled, received from a prominent firm consisted of barium hydrate.

Reported by G. E'WE.

LYCOPodium: An excess of ash was found in one lot which was otherwise of U. S. P. quality.

Reported by J. G. ROBERTS.

MACE: Out of 10 samples examined, 4 were slightly above the 30% maximum figure for non-volatile ether extract.

Reported by C. H. LAWALL.

MAGNESIUM CARBONATE: An excess of 0.44% and 0.14% of calcium calculated as calcium oxide was found in two lots which complied with all other U. S. P. conditions.

Reported by J. G. ROBERTS.

MAGNESIUM CARBONATE: Out of 5 samples examined two contained over 5% of CaCO_3 and over 0.25% Fe_2O_3 .

Reported by C. H. LAWALL.

MANGANESE DIOXIDE, PRECIPITATED, U. S. P.: One lot contained 2.32% insoluble matter. The U. S. P. allows only 0.2%.

Reported by G. E'WE.

MARJORAM: Sixteen samples examined, 7 of which were found to contain over 10% of foreign leaf fragments.

Reported by C. H. LAWALL.

MERCURY BENZOATE: Two lots did not answer the following N. & N. R. 1918 requirements: "At 20° C. a 10% solution of sodium benzoate dissolves 1% of its weight of mercuric benzoate." A large liberation of benzoic acid occurred during the application of the test.

Mercuric benzoate is commonly prepared for hypodermic use by solution in normal saline solution. Two lots contained between 1 and 2% of matter which was insoluble in normal saline solution.

Reported by C. GREEN.

NUTMEG: The six samples tested were all satisfactory.

Reported by C. H. LAWALL.

NUX VOMICA: Two lots contained, respectively, 2.34% and 2.22% of alkaloids which are below the U. S. P. standard of not less than 2.5% alkaloids.

Reported by J. G. ROBERTS.

OIL, CASTOR: Four samples of good quality gave the following acid numbers: 1.54, 1.61, 1.59 and 1.63.

Reported by J. G. ROBERTS.

OIL OF DILL: This oil was obtained by distilling a lot of siftings that were left after cleaning a shipment of dill seed. The oil upon examination gave the following results:

| | |
|--------------------------------|--------|
| Appearance..... | Yellow |
| Sp. gr. at 15° C..... | 1.01 |
| Optical rotation at 20° C..... | +34.9° |

As oil of dill is not recognized by the U. S. P. or the N. F. the results obtained in this examination were compared with the standards given in the B. P. It was found, however, that it did not meet the requirements given therein as the specific gravity was higher than the B. P. standard of 0.900 to 0.915 at 15.5° C. and its optical rotation lower than the standard of +70°

to $+80^{\circ}$ at 20° C. In view of the foregoing facts it was considered that the oil was not of normal quality on account of differing so appreciably from the standards.

Reported by J. G. ROBERTS.

OIL OF LEMON, EXTRA STRONG: Assayed 20.5% citral.

Reported by G. E'WE.

OIL OF LEMON, TERPENELESS: Two lots assayed 28.6% and 26.7% of citral, respectively.

Reported by G. E'WE.

OIL, RATTLESNAKE: The following data was obtained with one lot:

| | |
|--------------------------------|-------|
| Sp. gr. at 25° C..... | 0.919 |
| Iodine value..... | 102.3 |
| Saponification value..... | 202.1 |

The sample corresponds closely with the published factors for genuine rattlesnake oil and was considered authentic.

Reported by J. G. ROBERTS.

OIL OF SASSAFRAS: Sample was of U. S. P. quality with the exception that it did not comply with the optical rotation standard of $+3^{\circ}$ to $+4^{\circ}$. The U. S. P. VIII permitted the use of sassafras oil with an optical rotation as low as this one as it merely required that the rotation should be not above $+4^{\circ}$. In the past six years we have examined eight lots which had the following optical rotation: $+2.03^{\circ}$, $+3.83^{\circ}$, $+2.48^{\circ}$, $+1.59^{\circ}$, $+2.16^{\circ}$, $+2.9^{\circ}$, $+2.55^{\circ}$ and $+3.9^{\circ}$.

Six of these are below $+3^{\circ}$ and two are above.

Reported by J. G. ROBERTS.

OIL OF SWEET ORANGE: One lot was dark in color but fine in odor and answered all U. S. P. requirements.

Reported by G. E'WE.

OLIVE OIL: Three out of 8 samples examined consisted of cottonseed oil. None of the adulterated samples came from drug stores.

Reported by C. H. LAWALL.

PAPAIN: All the papain tested during the past year was low in proteolytic power. None assaying more than 1 to 4.7.

Reported by G. E'WE.

PAPRIKA: Twelve samples were all of good quality.

Reported by C. H. LAWALL.

PEANUT BUTTER: As it was suspected that this product contained ground glass, added with malicious intent, it was examined both macroscopically and chemically for mechanical matter. No glass was found, however, with either method. The sample yielded 0.3% of ash insoluble in hot dilute hydrochloric acid and 0.38% of insoluble matter left after oxidation of organic matter with sulphuric acid and potassium sulphate. The presence of glass was probably suspected on account of the presence of coarse salt.

Reported by J. G. ROBERTS.

PEPPER, BLACK, GROUND: The twenty-one samples tested all complied with the standards.

Reported by C. H. LAWALL.

PEPPER, WHITE, GROUND: Eleven samples examined were all satisfactory.

Reported by C. H. LAWALL.

PETROLATUM (LIQUID): The rejection of a three-drum lot was recommended because it contained an excess of carbonizable impurities and had a slight taste of kerosene.

Reported by J. G. ROBERTS.

PETROLATUM, LIQUID, U. S. P.: A few samples contained excessive carbonizable impurities.

Reported by G. E'WE.

PHYSOSTIGMA: The alkaloidal content of one lot was 0.14% which is a trifle under the U. S. P. standard of 0.15%.

Reported by J. G. ROBERTS.

POTASSIUM CARBONATE: One lot was 5% low in strength, contained a trace of earthy impurities and was dirty. It contained practically no sodium when tested quantitatively and a normal amount of arsenic according to the general test of the U. S. P.

Reported by J. G. ROBERTS.

POTASSIUM PERMANGANATE: Three lots were rejected because of excessive water-insoluble matter.

Reported by G. E'WE.

POTASSIUM NITRATE: Two lots were of U. S. P. quality except that they had a yellowish color.

Reported by J. G. ROBERTS.

POTASSIUM PERMANGANATE: All of the shipments examined complied with the standards of the U. S. P. except that they had a decided bronze luster. The U. S. P. requires potassium permanganate to have a dark purple color.

Reported by J. G. ROBERTS.

QUININE FORMATE: Melting intervals vary. Three lots had following melting intervals, respectively: 120-122° C., 124-126° C. and 145-150° C.

Reported by G. E'WE.

RENNIN 1-30,000: The rejection of one shipment was recommended because its coagulating power was less than $\frac{1}{2}$ of that claimed on the label when tested according to the method of the N. F.

Reported by J. G. ROBERTS.

RENNIN: Continues to vary greatly. Seven lots assayed as follows: 1 to 10,500, 1 to 12,500, 1 to 15,625, 1 to 16,666, 1 to 16,666, 1 to 26,000 and 1 to 41,000.

Reported by G. E'WE.

SAFFRON: Seven samples were all of N. F. quality.

Reported by C. H. LAWALL.

SAGE: Out of 7 samples examined 4 were found to contain an excess of stems, in two cases the stems amounting to over 50% of the samples.

Reported by C. H. LAWALL.

SALOL: Sample was of U. S. P. quality with the exception that it had a yellowish color. This condition seems to have become chronic as considerable of the salol seen on the market is in that condition.

Reported by J. G. ROBERTS.

SANGUINARINE NITRATE: Continues to vary greatly. The 4 lots examined assayed 51.4, 53.0, 94.2 and 98.7%, respectively.

Reported by F. KEENAN.

SAVORY: Out of 3 samples submitted, one contained an excess of stems (24%).

Reported by C. H. LAWALL.

SCAMMONY, RESIN: One lot contained only 90.6% ether-soluble matter. The U. S. P. requires 95%.

Reported by G. E'WE.

SENEGA: One shipment was considered unsatisfactory because it contained 30% of stems instead of 5% as required by the U. S. P. and only 0.22 Gm. of ether-soluble matter from 5 Gm. of drug instead of 0.3 Gm. as required.

Reported by J. G. ROBERTS.

SOAP, SOFT: Four lots were practically neutral, inclining toward acidity, whereas the U. S. P. requires soft soap to be faintly alkaline.

Reported by G. E'WE.

SODIUM BENZOATE: The U. S. P. sanctions the use of synthetic benzoic acid and requires benzoic acid to be tested for chlorine because chlorine is a possible impurity in synthetic benzoic acid. Synthetic benzoic acid can be and probably is used to manufacture sodium benzoate, yet the U. S. P. evidently by oversight neglects to direct the application of a test for chlorine to sodium benzoate or benzoic acid recovered from it. None of the sodium benzoate tested during the past year contained chlorides.

Reported by G. E'WE.

SOLUTION HYDROGEN PEROXIDE: Every lot examined was of U. S. P. quality except that one lot had a slight excess of non-volatile matter and two lots a slight excess of free acid.

Reported by J. G. ROBERTS.

SOLUTION MAGNESIUM CITRATE: Two out of 5 samples were found to be low in amount of magnesium citrate present.

Reported by C. H. LAWALL.

STORAX, LIQUID: There appears to be no strictly U. S. P. liquid storax on the market. Some lots are marked "not U. S. P." Eight lots had the following characteristics:

| Sample. | Alcohol sol. | Alcohol insol. | Ash. | Acid value. | Sapon. val. |
|-------------------|--------------|----------------|-------|-------------|-------------|
| 1..... | 84.08 | 0.86 | 0.45 | 155 | 193.5 |
| 2..... | 87.0 | O. K. | 0.35 | 144 | 196 |
| 3..... | 87.5 | O. K. | 0.04 | 155 | 212 |
| 4..... | 90.8 | 0.18 | None | 41 | 167 |
| 5..... | 91.1 | 1.62 | 0.72 | 118.7 | 181 |
| 6..... | O. K. | O. K. | O. K. | 171.7 | O. K. |
| 7..... | O. K. | 1.6 | O. K. | 122.3 | 163 |
| 8..... | 91.0 | 7.37 | O. K. | 118.5 | 166.5 |
| U. S. P. req..... | 60 | 2.5 | 1% | 56-85 | 170-230 |

Sample No. 4 was labeled "American" and was clear and light yellow in color instead of turbid and brownish.

Reported by G. E'WE.

STRAMONIUM LEAVES: Two lots contained, respectively, 0.39% and 0.3% of alkaloids.

Reported by J. G. ROBERTS.

SUGAR (CANE): A grossly adulterated lot was found to contain 21% of sodium chloride.

Reported by J. G. ROBERTS.

SUGAR, CORN: All of the solid corn sugar examined during the past year was free from barium, arsenic and heavy metals. Reported by G. E'WE.

SULPHUR (PRECIPITATED): Three of the five lots examined were not as represented. One was found to be washed sulphur and two yielded exceedingly high amounts of ash. One of these was of Japanese origin and yielded 46.4%. The other yielded 45.1% whereas the U. S. P. permits not more than 0.3%. Reported by J. G. ROBERTS.

TERRA ALBA: All of the terra alba examined during the past year consisted of non-setting calcium sulphate. Reported by G. E'WE.

THYME: Three samples, one containing an excess of stems (17%).

Reported by C. H. LAWALL.

TINCTURE OF IODINE: The rejection of one lot was recommended because it contained only 6.14 Gm. of iodine in 100 mls instead of not less than 6.5 Gm. nor more than 7.5 Gm. as required by the U. S. P. Reported by J. G. ROBERTS.

VERDIGRIS: The following amounts of copper calculated as copper oxide were found in the samples given below:

| | Sample No. | Copper oxide. |
|----------------------|------------|---------------|
| Blue Verdigris..... | 1 | 38.49% |
| Green Verdigris..... | 2 | 32.91% |
| Green Verdigris..... | 3 | 37.80% |

Reported by J. G. ROBERTS.

WILD LETTUCE: One lot was rejected because of excessive proportion of midrib.

Reported by B. HOFFSTEIN.

WINTERGREEN LEAVES: One lot was rejected because of excessive proportion of stems. Reported by G. E'WE.

ZINC: This lot was stated to be arsenic free but upon examination was found to be of unsuitable quality as it contained a decided trace of arsenic. It complied with the requirement as given under the ordinary U. S. P. zinc but it was not suitable for U. S. P. reagent zinc as it yielded more than "a scarcely perceptible stain" when tested according to the method given. Reported by J. G. ROBERTS.

ZINC OXIDE: Sample contained an excess of heavy metals which, however, is not an unusual condition as most zinc oxide examined by us has contained excessive amounts. This sample contained 0.16% of lead calculated as lead oxide and compares favorably with the lowest amount found in various samples. During the past three years the samples examined have contained 0.09% to 0.44% of lead calculated as lead oxide. Reported by J. G. ROBERTS.

ZINC OXIDE: Of 8 samples examined but 2 responded to the U. S. P. heavy metal test. Reported by C. H. LAWALL.

ZINC OXIDE: Nine lots contained excessive heavy metals ranging from 0.05 to 0.236% calculated as metallic lead. Reported by G. E'WE.

ZINC PERMANGANATE: One lot was rejected because of the presence of a large proportion of water-insoluble matter. Reported by G. E'WE.

The Following Table Shows the Results of 131 Crude Drug Assays made in the Analytical Laboratory of the H. K. Mulford Company during the Year June 1, 1917-June 1, 1918.

| Drug | No of samples. | Lowest assay. | Highest assay. | Average. | Standard | Number. | |
|----------------------|----------------|---------------|----------------|----------|-----------------------|---------|--------|
| | | | | | | Above. | Below. |
| Aconite Leaves.. | 3 | 0 37% | 0 51% | 0 460% | 0 2% ether-sol. alks. | 3 | 0 |
| Aconite Root | 3 | 0 33% | 0 49% | 0 414% | 0.5% ether-sol. alks. | 0 | 3 |
| Belladonna Leaves. | 8 | 0 31% | 0 79% | 0 450% | 0 3% alkaloids | 8 | 0 |
| Belladonna Root | 8 | 0 40% | 0 710% | 0 530% | 0.45% alkaloids | 6 | 2 |
| Cantharides, Chinese | 3 | 1 08% | 1 90% | 1 60% | 0 6% cantharidin | 3 | 0 |
| Cinchona, red | 6 | 5 55% | 10 0% | 7 70% | 5% alkaloids | 6 | 0 |
| Cinchona, yellow | 3 | 6 01% | 9 38% | 7 46% | 5% alkaloids | 3 | 0 |
| Coca Leaves. | 2 | 0 73% | 1 14% | 0.93% | 0.5% alkaloids | 2 | 0 |
| Colchicum, Corm... | 1 | 0 37% | 0 37% | 0 37% | 0.35% colchicine | 1 | 0 |

| Drug | No. of samples. | Lowest assay. | Highest assay. | Average. | Standard. | Number. | |
|------------------------|-----------------|---------------|----------------|----------|-------------------------|---------|--------|
| | | | | | | Above. | Below. |
| Colchicum, Seed..... | 4 | 0.67% | 0.75% | 0.71% | 0.45% colchicine | 4 | 0 |
| Cubeb..... | 1 | 24.3% | 24.3% | 24.3% | 15% oleoresin | 1 | 0 |
| Ginger, African..... | 2 | 6.39% | 8.11% | 7.25% | 6% oleoresin | 6 | 0 |
| Gelsemium..... | 4 | 0.40% | 0.62% | 0.48% | 0.4% alkaloids | 4 | 0 |
| Ginger, Jamaica..... | 6 | 4.00% | 6.85% | 4.81% | 4% oleoresin | 6 | 0 |
| Guarana..... | 5 | 3.97% | 5.57% | 4.43% | 4% caffeine | 4 | 1 |
| Hydrastis..... | 2 | 3.94% | 4.47% | 4.20% | 2.5% alkaloids | 2 | 0 |
| Hyoscyamus..... | 2 | 0.059% | 0.066% | 0.062% | 0.065% alkaloids | 1 | 1 |
| Ignatia..... | 1 | 2.88% | 2.88% | 2.88% | 2% alkaloids | 1 | 0 |
| Ipecac..... | 14 | 1.66% | 2.65% | 1.95% | 1.75% alkaloids | 13 | 1 |
| Jalap..... | 6 | 5.95% | 16.92% | 8.89% | 7% total resins | 3 | 3 |
| Kola..... | 9 | 1.36% | 2.35% | 1.71% | 1.5% caffeine | 6 | 3 |
| Kola, Fresh..... | 1 | 1.176% | 1.176% | 1.176% | 0.65% caffeine | 1 | 0 |
| Lobelia..... | 3 | 0.50% | 1.14% | 0.745% | 0.5% alkaloids | 3 | 0 |
| Nux Vomica..... | 5 | 2.35% | 2.63% | 2.53% | 2.5% alkaloids | 4 | 1 |
| Opium Gum..... | 4 | 9.58% | 10.48% | 9.90% | 9.5% anhydrous morphine | 4 | 0 |
| Opium, Powdered..... | 9 | 9.98% | 10.50% | 10.16% | 10% anhydrous morphine | 8 | 1 |
| Pilocarpus..... | 1 | 0.67% | 0.67% | 0.67% | 0.6% alkaloids | 1 | 0 |
| Podophyllum..... | 7 | 3.10% | 6.70% | 4.31% | 3% resin | 7 | 0 |
| Sanguinaria..... | 2 | 3.37% | 3.95% | 3.66% | 2.5% alkaloids | 2 | 0 |
| Stramonium Leaves..... | 4 | 0.12% | 0.30% | 0.23% | 0.25% alkaloids | 3 | 1 |
| Stramonium Seed..... | 2 | 0.238% | 0.278% | 0.258% | 0.25% alkaloids | 1 | 1 |
| Totals..... | 131 | | | | | 113 | 18 |

COMPARISON WITH REPORTS PREVIOUSLY SUBMITTED.

| Year. | Total. | Above. | Below. | Percent. above. |
|------------------|--------|--------|--------|-----------------|
| 1909 Report..... | 395 | 313 | 82 | 79.3 |
| 1910 Report..... | 340 | 291 | 49 | 85.6 |
| 1911 Report..... | 263 | 224 | 39 | 85.1 |
| 1912 Report..... | 298 | 235 | 63 | 78.8 |
| 1913 Report..... | 382 | 264 | 118 | 69.1 |
| 1914 Report..... | 286 | 221 | 65 | 77.2 |
| 1915 Report..... | 133 | 98 | 35 | 73.6 |
| 1916 Report..... | 214 | 156 | 58 | 72.9 |
| 1917 Report..... | 172 | 147 | 25 | 85.3 |
| 1918 Report..... | 131 | 113 | 18 | 86.8 |

Last year practically none of the averages ran below standard. This year only aconite root, hyoscyamus and stramonium leaves ran below standard but only very slightly below. The general yearly average 86.8%, is the best yet recorded and is a very satisfactory indication that the general quality of drugs on the market is excellent, in spite of war conditions.

Reported by G. E'WE.

Committee { CHARLES E. VANDERKLEED,
CHARLES H. LAWALL,
O. W. OSTERLUND,
J. G. ROBERTS, *Chairman*.

CORRESPONDENCE

EXPRESSES APPRECIATION OF THE JOURNAL.

FAJARDO, PORTO RICO.

JULY 16, 1918.

MR. W. B. DAY,
GENERAL SECT. OF THE AMERICAN PHARM. ASSOCIATION,
701 S. WOOD ST., CHICAGO, ILL.

MY DEAR MR. DAY:

At the kind invitation of my friend and fellow pharmacist, Mr. Rudolph Wirth, of the firm E. Fougere & Co. of New York, I take the liberty of soliciting admission as a member of the American Pharmaceutical Association, enclosing herewith postal money order for \$5.00 in payment of rights for one year, including subscription to the JOURNAL. Mr. Wirth has been so kind as to send me a copy of the June number of the JOURNAL, and I can assure you that same was a most agreeable surprise, said JOURNAL being new to me; in my estimation it is an ideal aid to pharmacists who like myself are obliged to live distanced from scientific centers and institutions, where new methods are obtained, and where a better knowledge of the profession can be facilitated. The literature comprised in this JOURNAL is excellent, being instructive and interesting to a degree, being really a monthly conference, demonstrating scientifically and practically the highest methods of technics, high pharmacy and chemistry, and in fact to all that which directly pertains to pharmaceutical science.

The petitioner is a graduate in pharmacy of the New York College of Pharmacy, class of 1902, having had four years' practice in the City of New York, first as a pharmacist of the Roosevelt Hospital, and afterwards with the corporation of Hegeman & Co.; since 1906 have resided in Porto Rico, where I am established with my father, Dr. Jose A. Veve, in the drug business. Also the petitioner holds a license of the New York Board of Pharmacy.

Considering your consent and aid on this occasion a premium of inestimable value, I beg to remain,

Very respectfully yours,

(Sgd.) MIGUEL A. VEVE, PH. C.

EDITOR, JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

Why is it that when one writes a prescription thus:

R Strontii Bromidi $\bar{\text{S}}$ i

(Specified brand)

Tr Cardam Comp.

Tr. Nucis Vom aa $f\bar{\text{S}}$ i

Aquae q. s. ad $f\bar{\text{S}}$ iii

the druggist calls you up to say that you have a 3-ounce mixture without the water! Or worse yet, that when you write

R Strontii Bromidi $\bar{\text{S}}$ iv

(Specified brand)

Elix Aromat. $f\bar{\text{S}}$ i

Aquae qs. ad $f\bar{\text{S}}$ ii

the druggist dispenses $\frac{1}{2}$ fluid ounce of a solution instead of the $\frac{1}{2}$ ounce of salt you have written for. These things happen constantly.

I do not give the name of the specified brand in this letter for obvious reasons. But why should it make any difference to a druggist who knows how to read a prescription? And how can I guard myself and my patients against the careless druggist? Surely $\bar{\text{S}}$ iv is not $f\bar{\text{S}}$ iv and Strontii Bromidi is not Liquor Strontii Bromidi!

Yours truly,

S. SOLIS COHEN, M.D.

In answering Doctor Cohen it was stated, that a pharmacist should and usually does understand the difference between a fluid ounce and an ounce by weight.

One part of strontium bromide is soluble in 0.35 part of water, and 60 grains of the salt dissolved in 60 minims of water produce practically a volume of 100 minims. Or, if one ounce of the salt is dissolved in $4\frac{1}{2}$ fluidrachms of water about one fluid ounce of liquid results.

The brand of the salt has nothing to do with the case. It is a matter which requires an explanation from the compounder. Evidently there has been a recurrence of the error and on request of Doctor Cohen we are printing his letter and the substance of our reply.

RESOLUTIONS PASSED AT THE ANNUAL CONVENTION OF THE INTERNATIONAL ASSOCIATION OF ROTARY CLUBS IN THE INTEREST OF PHARMACEUTICAL CORPS IN THE ARMY AND NAVY.

WHEREAS, We believe that one of the most important duties devolving upon the governmental authorities is to provide to the utmost for the conservation of the lives and health of the American soldiers, who, sacrificing the comforts of home, are jeopardizing their all for the principles for which the nation is contending, and as our loved ones, and as the soldiers of our country, they are certainly entitled to the very best medical and surgical skill and to expert pharmaceutical service. It is deplorable that in the United States Army medicines are continuously dispensed by those who are unfitted for such duty and who lack a systematic education in the knowledge of drugs and the art of compounding medicines.

WHEREAS, While in civil life each state protects its citizens from incompetent practice, and by law provides for the required experience, education, examination and licensure of those entrusted with the dispensing of medicines, nevertheless the military authorities of the nation ignore the necessity for a like protection for the soldiers and permit potent, and even the most toxic drugs, to be dispensed by incompetent men without any pharmaceutical experience or education. To continue such practice is to continue to invite calamities and to perpetually expose those in the military service to untoward accidents and untimely deaths.

WHEREAS, It is regrettable that the United States with its progressive spirit and commanding position and its enormous resources should in this respect be found lagging and to have a medical department of the army not fully abreast with medical departments of the armies of other nations. In the armies of France, Germany, Austria, Japan, Italy, Spain, Belgium, Holland, Switzerland, Norway, Sweden, and in the colonial armies of Australia and Canada, there are organized pharmaceutical corps with recognized commissions and responsibilities aiding ably the medical officers in safeguarding the troops in these armies. The United States, that can well afford to give to the men in her military service the best, should not do less than these other nations; yet we have, at present, no pharmaceutical corps in either the army or navy.

Therefore, It is Resolved by the Ninth Annual Convention of the International Association of Rotary Clubs, that the establishment of a pharmaceutical corps in the United States Army as proposed by Bill H. R. No. 5531, introduced by Hon. George W. Edmonds of Philadelphia, and now pending before the Committee on Military Affairs of the House of Representatives, be endorsed. We urge that the medical department of the army be speedily reorganized to permit of this needed additional safeguard to our soldiers, and to guarantee to the men in the military service the same efficient pharmaceutical service that the States assure in civil life and that is now so generally vouchsafed to the armies of most of the other nations.

RECOGNITION OF PHARMACY.

An editorial in the *Pennsylvania Medical Journal* for June reads in part as follows:

"Practically every state of the Union has a law which provides that those who furnish drugs to the public shall be qualified for this professional work. In our Army, the hospital steward who dispenses the medicines ordered by the physician for the sick soldier is detailed from the ranks without requirement of pharmaceutical training.

"To remedy this defect and thus increase the efficiency of the Medical Department of the Army, it is proposed to establish a Pharmaceutical Corps. As is the case with the Dental Corps, the Sanitary Corps and the Ambulance Corps, this corps is to be under the command of the Surgeon-General of the Army.

"To provide for this recognition of pharmacy, Representative Edmonds of Pennsylvania last July introduced into the House of Representatives a bill to increase the efficiency of the Army, to provide a Pharmaceutical Corps in that department, and to improve the status and efficiency of the pharmacists of the Army."

Then follows a synopsis of the Bill and part of the concluding statements of the editorial are:

"It goes without saying that the efficiency of the Medical Department will be increased if trained and experienced pharmacists purchase (or manufacture), test and dispense the drugs selected and prescribed by the medical men. Also, though the pharmacist is not trained to render medical aid nor, except in isolated instances, to do chemical or bacteriological work, his familiarity with drugs should make him of considerable assistance 'in rendering first aid in wound treatment and the making of diagnostic and chemical tests.' The provision 'to establish and maintain a systematic course of study,' for those seeking promotion, follows the example set by the Army in establishing the Army Medical School, of the Navy in establishing the Naval Medical School and of the United States Public Health Service in providing courses of instruction to the men in the service and should do much to elevate the status of pharmacy.

"Altogether the establishment of a Pharmaceutical Corps, through the enactment of the Edmonds Bill or some similar measure, should make for greater efficiency in the Medical Department of the Army. Further, the commercial training of the pharmacist should also make for economy."

A PHARMACEUTICAL CORPS FOR THE ARMY.

An editorial in the *Missouri State Medical Journal* for July reads:

"The present world war is stopping the onward march of civilization in many directions; it is even forcing disorganized retreat that will require decades to recover. But, on the other hand, the stress is making science, arts and industry accomplish a ten-year advance in one year.

"In the United States it is bringing about a realization that the time of isolation with untold possibilities is past, and that the life of the individual and of the nation must be patterned so as to permit competition with the wide world. One result is that abuses and wrongs which in peace would have taken a decade of legislation to correct, are now adjusted in a single session of Congress.

"In former days, the surgeon's apprentice handed out to his master's patients the desired decoctions and boluses; a similar situation exists today in the Medical Department of the Army, which is forced to depend on untrained men to perform the services that in private life the professionally trained pharmacist is required to perform. However, the cry for still greater efficiency in the Medical Department of the Army gives promise that ere long a corps of professionally trained pharmacists will be placed under the command of Surgeon-General Gorgas."

Then follows a synopsis of the Edmond's Bill.

SULPHUR INDUSTRY TAKEN OVER BY THE GOVERNMENT.

The sulphur industry of the United States passed into Government control July 9. Production and distribution of the mineral will, with the approval of the President, be administered by the War Industries Board. The action was necessitated by the increased war demands for sulphur as an ingredient in explosives, and by the increasing burdens of the rail and water systems in transportation of war materials.

A. E. Wells, consulting engineer of the War Department, has stated that it would be possible to develop a comparatively swift source of supply by the thio-gen process of reclaiming sulphur from the smelter fumes, and that it

would be possible to erect two plants with a capacity of 500 tons a day to come into operation within a few months.

Present sources of sulphur supply are from two mines: one in Louisiana, producing over 3,500 tons of sulphur a day, and another in Texas, producing in excess of 1,000 tons a day. Minor properties in Nevada, Utah and Wyoming produce about sixty tons a day combined. Present sulphur consumption in the United States exceeds 125,000 tons per month, and Mr. Wells has stated that this will increase to over 150,000 tons per month before the end of the year, due to increased Government use.

EDITORIAL NOTES

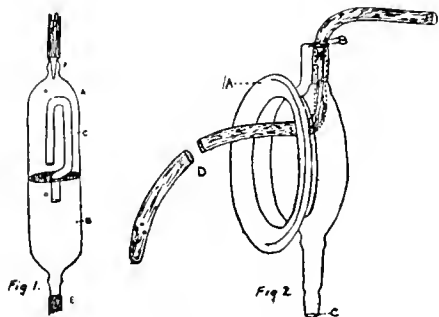
Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman*; G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio*.

Editorial Office: 253 Bourse Building, Philadelphia, Pa.

AIDS IN THE USE OF DAKIN-CARREL TREATMENT.

Dr. Max Bornstein, of Milwaukee, Wis., describes a glass automatic siphon for delivering a definite amount of fluid to a wound at a definite period of time, in *Journal A. M. A.*, June 15, 1918, p. 1820. The apparatus is shown in Figure 1; the periodicity of flushing is regulated by a Hoffman pinch-cock on the tubing between the solution tank and the apparatus. Two bells (*A* and *B*) annealed one to the other are connected by a siphon tube (*C*). A drip point is annealed into the upper end of the upper chamber. Both chambers have air vents.



The apparatus works as follows: Solution from an irrigating bottle or bag is allowed to pass a pinch-cock at a fixed rate. It accumulates in the upper chamber until it reaches the highest point of the siphon, when it suddenly is emptied by the siphon into the lower chamber. Here, by virtue of its height and its weight, it forces its way through the holes in the Carrel tube and flushes the wound. The flushing is periodic and eliminates the inconstant human element which is so often the cause of failure in the Dakin-Carrel technic.

Doctor Bornstein (First Lieutenant, M. R. C., U. S. Army) also has devised a suction drainage bell for applying Dakin-Carrel treatment in empyema, and is described in the same issue. This apparatus, Figure 2, consists of a flattened bell of glass, resting on a wide flange (*A*), where it comes in contact

with the skin around the wound opening. At the upper end of one diameter are two small tubular openings (*B*), for transmitting the usual Carrel tube into the wound cavity. One of these may be used for flushing the bell and for cleansing. On the opposite side is a large tubular opening (*C*) for carrying off drainage, by means of a rubber tube into a waxed or rubber bag. Also, to this latter opening may be applied vacuum suction in empyema cavities by connecting with a vacuum water suction pump. The apparatus is held in position by a rubber dam fitted on the flange and by adhesive. By its use one can save large quantities of dressings, a very important item. It prevents secondary contamination of the wound, and permits instillation of neutral solution of chlorinated soda. It allows for drainage which seeps out beside the Carrel tube; and in the urinary bladder, it does away with the constant overflow of foul smelling urine. In empyema it permits the use of negative pressure to expand the lung and hastens obliterations of the empyema cavity. A Furniss rubber empyema spool is a valuable aid. It is made of glass; can be removed easily for cleansing and boiling, and can be easily reappplied.

PARAFFIN PAPER AS A SURGICAL DRESSING.

Charles M. Harpster, Ph.G., M.D., of Toledo, Ohio, writing in the *Journal A. M. A.*, June 8, 1918, p. 1763, states that paraffin paper will be found an excellent dressing for burns or any other condition in which a non-adherent dressing is desirable. It is far superior to the paraffin dressing of burns by the spray method, is much more easily and rapidly applied, results in more rapid healing of the burned surface, and is more easily removed.

In the first stage of burns, when there is great pain, the various ointments now in use can be applied directly to the paraffin paper and this applied to the burned area after all vesicles have been opened. It has the advantage of excluding the air, which relieves

the pain of the burns, and it is readily removed at the time of redressing, leaving the developing granulations unaltered.

The first dressing of pure petrolatum on paraffin paper, is applied directly to the burn, and over this a layer of cotton and the usual bandage. As the paper is impervious to moisture, the serum that seeps from the injury runs away from the raw surface, and is absorbed by the outer dressings beyond the injury. There is no sticking to the burn or other wounds, when the dressings are removed. Experience has proved that dressings once in two or three days are sufficient in most cases. Certain cases, however, may require more frequent dressings.

Paper bandages, which are now being universally used, perhaps more through necessity than choice, have been found to work well in certain dry dressings. But the thought arose, what a great saving could be accomplished if they could be used on moist dressings or dressings in which there is considerable oozing or drainage. Here again, the paraffin paper can be utilized as a barrier between the moist dressings and the paper bandage. It has the desired effect of keeping the moisture inside the dressing, and prevents the paper bandage from becoming wet and tearing easily.

Dr. Harpster concludes the article by saying that an attempt is being made to have sterile packages of the paper put up and, that to an extent, the paper will replace oiled silk and rubber tissue, especially if a heavier coating of paraffin can be applied to the paper.

SKIN CANCER.

The *New Orleans Medical and Surgical Journal* states that perhaps the most frequent excitant of all causes, so far as skin cancer is concerned, is dandruff. If falls from the scalp, and lights on the ear, eyelids, nose, neck, lips and face, and if there is already a scaling spot, or a thickening, or a wart, a mole, or a gland ready to receive the dandruff scale, it sets this spot alive with activity and it goes on to form a skin cancer. Probably 60 percent of skin cancers are due to this cause, and many a cancer has been prevented and may be prevented by curing the dandruff or by preventing it.

INSOLUBILITY OF SOFT GELATIN CAPSULES.

Dr. F. W. Dersheimer, director of the work of the International Health Board in British Guiana, reports on experiments showing that soft capsules are relatively insoluble in the stomach. Comparative experiments were also made with hard capsules which proved that these completely dissolved in an acidified pepsin solution in twenty-one minutes, while the soft capsules similarly treated showed no signs of dissolving beyond slight softening after twenty-four hours. The experiments on which the reports are based were conducted with the support and under the auspices of the International Health Board of the Rockefeller Foundation. The article is printed in the *Journal A. M. A.*, for November 3, 1917, p. 1508. It would seem that this is a subject for further investigation.

PROTECTION AGAINST MUSTARD GAS.

Protection against any of the gases now in use by the Germans is given to American soldiers by the masks now being worn. Statements that American masks do not protect soldiers from the effects of mustard gas are not warranted, according to an official statement from the Chemical Warfare Section authorized by the War Department.

The masks now worn will protect soldiers as long as they are required to remain in areas drenched by gas. The clothing worn by the soldiers will resist the effects of the gas for a normal period. As an added precaution, the soldiers are now provided with a neutralizing ointment to be rubbed on those parts of the body where mustard gas is likely to penetrate through the clothes.

OFFICIAL NAMES FOR LICENSED DRUGS.

Prof. Julius Stieglitz, chairman of the Subcommittee on Synthetic Drugs, National Research Council, on behalf of the committee, urges the use of the official names of licensed drugs, and if the proprietary brand name is to be used to place this side by side with the official name. The official names so far adopted by the Federal Trade Commission are:

Arsphenamine for the drug marketed as Salvarsan, Diarsenol and Arsenobenzol, etc.

Neoarsphenamine for the drug marketed as Neosalvarsan, Neodiarsenol and Novarsenobenzol, etc.

Barbital for the drug marketed as Veronal.

Barbital-Sodium for the drug marketed as Medinal and Veronal-Sodium.

Procaine for the drug marketed as Novocaine.

Procaine Nitrate for the drug marketed as Novocaine Nitrate.

Phenylcinchoninic Acid for the drug marketed as Atophan.

AMERICAN CASTOR OIL.

According to Government reports the biggest castor oil mill in the world will be in operation this month at Gainesville, Fla. Reports from Florida are fully up to expectations and Texas will have a yield as large as has been counted upon.

W. S. Glynn-Jones, M. P., has been elected Secretary of the Pharmaceutical Society of



W. S. GLYNN-JONES

Great Britain. Mr. Glynn-Jones was elected member of the House of Commons in 1910.

He is the author of "The Law of Poisons and Pharmacy," and has been active in British legislation relating to pharmacy.

William Kirkby, elected president of the British Pharmaceutical Conference, is the son of a pharmacist and obtained his degree of pharmaceutical chemist in 1882. In 1886 he became associated with Jewsbury and Brown.



WILLIAM KIRKBY

New President British Pharmaceutical Conference

He has been active in pharmaceutical affairs of Great Britain and is well known for his work in historical research.

Charles H. LaWall, president-elect of the American Pharmaceutical Association, has been invited to become a member of an Advisory Board to the Division of Medical Industry.

OBITUARY.

CHARLES FORD DARE.

Charles F. Dare, engaged in the drug business in Bridgeton, N. J., since 1872, died May 16, 1918. The deceased was born in Bridgeton, May 19, 1842, and the funeral services were held on the anniversary day of his birth.

Mr. Dare graduated March 1861, from the Philadelphia College of Pharmacy; this same year he entered the service as hospital steward

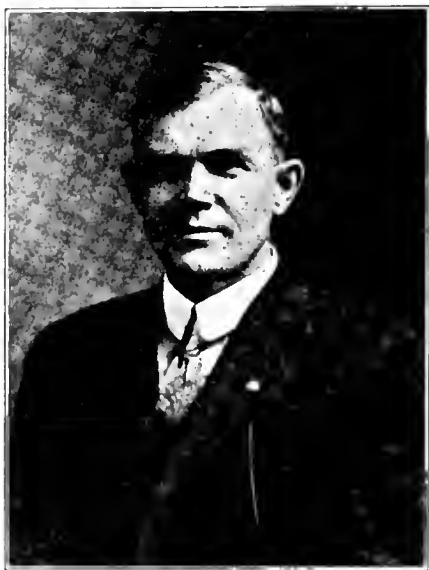
and served in that capacity to the end of the Civil War. On his retirement from the Army he entered the employ of Edwin F. Brewster, and in 1872 engaged in business on his own account. For a number of years his son Charles W. has been a member of the firm.

Mr. Dare was a director of the Bridgeton National Bank, secretary of the Merchants and Mechanics Building and Loan Association. He was member and officer in the First

Presbyterian Church of Bridgeton and affiliated with the Masonic bodies and Odd Fellows. He joined the New Jersey Pharmaceutical Association in 1874, was secretary for several years and its president in 1895. He became a member of the American Pharmaceutical Association in 1889. One son and a daughter survive the deceased.

GEORGE D. TIMMONS.

George Deming Timmons, descendant of a long line of Scotch-Irish ancestors, was born on August 10, 1867, in Warren County, Indiana. After receiving his early training in Green Hill Seminary, he taught in the public schools from 1884 to 1895. He married Mary Alice Sayers in 1888 and to them were born five children, four of whom are living. The mother of these children died in 1904. Mr. Timmons was married to Mrs. Cecilia Spurbek in 1905. They had one daughter.



GEORGE D. TIMMONS

Mr. Timmons entered Valparaiso University in 1895, was graduated with honors in the Pharmacy class of 1897, appointed assistant Professor of Chemistry and Pharmacy, from which position he was elected Head of the Department of Chemistry in 1909 and Dean of the Department of Pharmacy in 1912. During this time he attended the University

of Chicago, doing post-graduate work under Alexander Smith, with whom he continued a cordial relationship.

Under Mr. Timmons' leadership the School of Pharmacy became one of the most important and most completely organized and equipped departments of the University. His acquaintance with members of his profession, his activity to place the School of which he was Dean among the most efficient in the country, a constant and conscientious endeavor to be loyal to the best interests of the students, the University, the ethics of his chosen work, and the spirit of his subject, made of him a distinct personality.

Mr. Timmons published in 1914, "Experiments in General Chemistry I and II," and in 1917 "Qualitative Chemical Analysis." At the time of his death he was engaged in gathering data for a further publication.

An active member of the American Pharmaceutical Association and of the American Chemical Society, and for four terms a member of the Valparaiso City Council, he continually made himself felt as a factor in the life of his community and his profession.

Since May Mr. Timmons had been in the offices of the Eli Lilly Company of Indianapolis, filling a position made vacant by the draft. Following a week's illness with typhoid fever, he died July 18th, at the Methodist Hospital in Indianapolis. Services were held in the Auditorium of Valparaiso University at Valparaiso, interment being made in Grace-land Cemetery.

E. H. WISNER.

John Frederick Kutchbaugh, member of the A. Ph. A. for a number of years, and veteran druggist of Northside, Cincinnati, Ohio, died June 22, aged 62 years. Resolutions of sympathy were prepared by a committee composed of J. Fred Zuenkel, Charles T. P. Fennel, Theodore D. Wetterstroem, Louis Werner, Sr., and submitted by Secretary Charles A. Apmeyer, of the Cincinnati Branch, A. Ph. A. Mr. Kutchbaugh conducted a pharmacy at Blue Rock and Lake-man Streets for thirty years and was previously engaged in the drug business in Dayton, Ohio. He participated actively in association work and was a graduate of the Cincinnati College of Pharmacy. He is survived by a daughter and one son, who is in service in the Motor Truck Division.

SOCIETIES AND COLLEGES.

THE CHICAGO CONVENTION OF THE
AMERICAN PHARMACEUTICAL
ASSOCIATION.

This issue of the JOURNAL will reach the homes of the members during Convention Week, and it is to be hoped many will be in attendance as there is much important work that requires attention.

Whatever the attendance may be, the thanks of the Association are due the pharmaceutical publications for the splendid publicity given by them. While such expression will be given in resolutions we desire to take this opportunity of making such record of appreciation. Many who are usually in attendance will be absent and doubtless for good and sufficient reasons. All, however, have been impressed with the importance of the meeting.

FOURTH NATIONAL EXPOSITION OF
CHEMICAL INDUSTRIES.

The Fourth National Exposition of Chemical Industries will be held in the Grand Central Palace, New York, during the week of September 23. The coming Exposition will be the largest Chemical Exposition ever held and it will be necessary to use four floors of the Grand Central Palace. The amount of floor space already engaged is greater than last year so the managers say the exhibits will be much more attractive and a movement is under way to show all exhibits of machinery in operation under actual working conditions as they would be found in the field. The products of the chemicals manufactured and as they enter into the world's commerce will be there as examples of what the chemist has produced in America since the world war began.

SYLLABUS COMMITTEE.

BULLETIN XVIII.

The Committee will meet at the headquarters hotel during the meeting of the American Pharmaceutical Association in Chicago, in the week beginning August 12, 1918. The exact time and place will be announced by the Chairman and Secretary.

It is expected that the three sub-committees will submit the revision of their several sections of the present Syllabus for consideration and adoption by the whole committee, after any necessary changes are made.

The Chairman has been collecting suggestions and material for the proposed third year course and will present the results as a basis

for the preparation of this addition to the Syllabus.

The programme of the meeting will be as follows:

- I. Roll-call.
- II. Report of the Chairman.
- III. Report of the Secretary-Treasurer.
- IV. Report of the Sub-Committee on Materia Medica, H. H. Rusby, *Chairman*.
- V. Report of the Sub-Committee on Chemistry, J. A. Koch, *Chairman*.
- VI. Report of the Sub-Committee on Pharmacy, W. H. Rudder, *Chairman*.
- VII. Discussion of the proposed addition to the Syllabus, covering a third year of study, leading to the degree of Pharmaceutical Chemist.
- VIII. Miscellaneous business.
- IX. Adjournment.

Signed, THEODORE J. BRADLEY,
Chairman.

BOSTON, July 25, 1918.

THE ANNUAL CONVENTION OF THE
NATIONAL ASSOCIATION OF RETAIL
DRUGGISTS.

The appeals for attending the meetings of associations apply with equal force to that of the National Association of Retail Druggists. Never before in the history of the country have so many problems confronted the retail druggists and by conferring together benefit will accrue to all of them. We use the words of President W. H. Cousins:

"To-day, as never before, druggists should stand together in the unstinted support of their local, state and national organizations. Your craft and your country need you, and you can serve your country best through co-operating with your craft. Every industry in America feels the tightening tentacles of the monster war; every industry in America is making its sacrifices.

"Will any craft make sacrifices more readily or more willingly than the men trained in the science of pharmacy? We say 'No,' a thousand times no! This is no time for idle words. There is work to do that requires grim determination, backbone and hearts of oak.

"On behalf of the National Association of Retail Druggists, we urge every druggist in America to do not only his bit, but his best for the organizations whose missions in the world are for the betterment of the conditions of our calling—thus serving our government to the best possible advantage."

THE NATIONAL PHARMACEUTICAL SERVICE ASSOCIATION.

The regular monthly meetings of the National Pharmaceutical Service Association held throughout the winter in Philadelphia expanded during the last month into many centers of activity where State associations were gathered. The Edmonds Bill, for which the N. P. S. A. is working hard, was again approved through strong resolutions at practically every State Association meeting held during the last six weeks. In many places petitions were signed and forwarded to the President of the United States, Secretary of War, and the Surgeon-General of the Army, and to Congress, and in Pennsylvania and New Jersey, similar petitions have been circulated to all members of the State Associations with the request that they secure signatures of the parents of the men in the service, of physicians, and other prominent men in the community, urging upon Congress the passage of suitable legislation for the establishment of a pharmaceutical corps.

One encouraging development has been the active advocacy of the Edmonds Bill by the *Pennsylvania Medical Journal*.¹ Everyone who is interested in this legislation should try to secure the support of physicians, the large majority of whom are entirely in harmony with the efforts of this association, knowing well the importance of pharmaceutical help and recognizing the need for the use of all resources of the country, which are available for helping the Medical Service. Another encouraging development has been the support given the Edmonds Bill by the Rotary Clubs of the country, not only in many local organizations, but at the recent Convention of the International Association of Rotary Clubs, resolutions were passed and forwarded to the officials at Washington, strongly urging the establishment of a pharmaceutical corps in the Army and Navy.

Those who are impressed with the importance of securing this kind of service for the men in the Army, can help by securing the interest of citizens, especially those who are not pharmacists, to prove the disinterested character of our claim. They should send letters and signed petitions, urging this legislation. Anyone who is willing to help in this way should correspond at once with the Secretary, E.

Fullerton Cook, 145 N. Tenth Street, Philadelphia, Pa.

When confronted with the question, "What can be the help of a Pharmaceutical Corps in the American Army?" let us point with pride and with hope to the splendid work being done to-day in France by the Marines and also in our Navy. Here the Chief Pharmacists, over 200 of whom have been advanced since the war began, to the rank of Junior Lieutenant, are doing the very work which we advocate for the Pharmaceutical Corps in the Army, and are doing it exceptionally well. This fact should answer conclusively the claim that the Army cannot use pharmacists. It is true these men have had special training in the needs of the service; they know how to take care of the medical stores, to look after the sanitation of the camp, to dispense needed medicines, and act as general superintendents for the hospitals, but this same training can be given to graduate pharmacists in the Army, and Navy. Doctors admit that graduate pharmacists respond to the training more quickly, and produce, as a class, a better type of men than any others who enlist.

THE NATIONAL WHOLESALE DRUG- GISTS' ASSOCIATION CHARGED WITH "CONSPIRACY" BY THE FEDERAL TRADE COMMISSION.

The Federal Trade Commission, on June 29, served complaint against the National Wholesale Druggists' Association, alleging that it has reason to believe, and charges on information and belief, that the respondents are, and for more than two years last past have been wrongfully and unlawfully engaged in a combination or conspiracy among themselves, with the intent, purpose and effect of discouraging, stifling and suppressing competition in interstate commerce in the wholesale drug trade of the United States.

The complaint further charges that the aforesaid combination and conspiracy to induce or compel manufacturers of drugs and druggists sundries, to refuse to sell them as such or to discriminate in price against them, have been effected and carried out by various means, among them the following: By verbal and written notices to manufacturers that certain customers or prospective customers were not entitled to recognition, as so-called regular or legitimate jobbers; by the appointment of committees to confer with said manufac-

¹ Also the *Missouri State Medical Journal*.—Editor.

turers or owners, for the purpose of influencing said manufacturers to adopt sales methods in harmony with the policies of the National Wholesale Druggists' Association; by written and verbal notices given by the secretary of the National Wholesale Druggists' Association to said manufacturers that said competitors who are not members of said association are selling below the net price named by manufacturers for resale; by the compilation and distribution among manufacturers and wholesalers of lists of so-called legitimate jobbers; by bringing influence to bear on various local associations of drug jobbers and wholesalers to adopt policies in harmony with the policies of the National Wholesale Druggists' Association.

The predominant issue seems to involve questions concerning resale prices and may bring about a definite understanding of the law on the subject. We concur with the *Paint, Oil and Drug Reporter* in saying:

"We do not believe—particularly in view of the character of the men named in the N. W. D. A. citation, and of the complete and self-sacrificing coöperation by this branch of the pharmaceutical industry with the Government in all war activities—that there has been any attempt on the part of the Association to evade any statute law of the United States."

SCHLOTTERBECK MEMORIAL PORTRAIT.

At the Fiftieth Anniversary of the Michigan University College of Pharmacy, the presentation of the Schlotterbeck Memorial Portrait was one of the features. Also at this time Dean A. B. Stevens was pleasantly surprised by the Alumni, who presented him with a fine engraved gold watch.

RECRUITING FOR Y. M. C. A.

Manufacturers and wholesalers in the New York drug trade have been asked to assist in the recruiting of the four thousand Y. M. C. A. workers requested by General Pershing to go to France and look after the needs of the American Army there. An informal committee of the drug industry, comprising Dr. Wm. J. Schieffelin, Sanders Norvell, F. E. Holliday, Henry S. Livingston and Franklin Black decided to make an appeal to those manufacturing and wholesale houses who have salesmen on the road, asking them to designate one of their travellers for the overseas work.

Travelling men are specified in this letter,

because of the intimate touch they acquire with human nature, as well as other qualifications which might be expected to fit them for the work. They are not particularly designated in General Pershing's request, and any man who can meet the mental, moral and physical requirements is desired.

STATE PHARMACEUTICAL ASSOCIATIONS.

OFFICERS FOR 1918-1919.

CONNECTICUT.

President, Carl S. Ramsey, New Britain (re-elected).

First Vice-President, Chas. T. Hull, New Haven.

Second Vice-President, Semion S. Nelson, Hartford.

Secretary-Treasurer, P. J. Garvin, Bethel (re-elected).

DELAWARE.

President, W. B. Jester, Delaware City.

Vice-Presidents, George W. Rhoades, Newark; Walter Keys, Smyrna; R. N. Kauffman, Seaford.

Treasurer, Oscar C. Draper, Wilmington.

Secretary, Nora V. Brendle, Wilmington.

Executive Committee, W. B. Jester, J. M. Tarvey, Erdman Hoffman, Harry Worrell and R. H. Leesome.

FLORIDA.

President, Marshall Rize, Tampa.

Vice-Presidents, J. S. Jewett, Lakeland, Roy N. Chelf, Brooksville, and T. H. Lander, Bradentown.

Secretary-Treasurer, J. H. Haughton, Palatka.

Executive Committee, W. D. Jones, Jacksonville; W. A. Rawls, Pensacola; M. M. Taylor, Tampa.

GEORGIA.

President, Dr. T. F. Burbank, Cedartown.

Vice-Presidents, W. T. Knight, Savannah; D. G. Wise, Atlanta; and R. E. Perry, Sylvia.

Secretary, T. A. Cheatham, Macon.

Treasurer, T. C. Marshall, Atlanta.

Tybee Island was chosen as the permanent meeting place.

IDAHO.

President, A. E. Sutton, Caldwell.

First Vice-President, Thomas Poole, Nampa.

Second Vice-President, Roscoe Smith, Boise.

Secretary, Norman C. Beckley, Boise.

Treasurer, C. W. Isenbun, Ashton.

IOWA.

President, T. M. Watts, Holstein.

Vice-Presidents, J. G. Becker, Dubuque; George Judisch, Ames; and P. W. Dowd, Guthrie Center.

Secretary, Al Falkenhainer, Algona; *Membership Secretary*, H. E. Eaton, Des Moines.

Treasurer, J. M. Lindly, Winfield.

INDIANA.

President, E. W. Stucky.

Vice-President, W. A. Oren.

Secretary, Wm. R. Werner (re-elected).

Treasurer, Frank H. Carter (re-elected).

One Executive Committeeman, B. M. Keene.

MAINE.

President, Frank H. Neal, Fairfield.

First Vice-President, E. F. Carswell, Gorham.

Second Vice-President, C. F. Cox, Bath.

Third Vice-President, S. I. White, Houlton.

Treasurer, A. W. Meserve, Kennebunk.

Secretary, Dr. M. D. Porter, Danforth.

MASSACHUSETTS.

President, Clifford P. Thompson, Springfield.

Vice-Presidents, Charles C. Hearn, Quincy; Alfred J. H. Paquette, Lynn; J. K. Mullarkey, Framingham.

Treasurer, James F. Finneran, Boston.

Secretary, James F. Guerin, Worcester.

MICHIGAN.

President, J. H. Webster, Detroit.

Vice-Presidents, Lee Chandler, Charlotte; and P. C. Brooks, Houghton.

Secretary, Frank J. Wheaton, Jackson.

Treasurer, Francis B. Drolet, of Kalamazoo.

Members of the Executive Committee, Geo. H. Grommet and E. W. Austin, Midland.

NEW JERSEY.

President, George M. Beringer, Jr., Camden.

First Vice-President, Louis L. Stachle, Newark.

Second Vice-President, Charles A. Bye, Lakewood.

Treasurer, Edgar R. Sparks, Burlington.

Secretary, Jeannot Hostmann, Hoboken.

Board of Trustees, Harry W. Crooks, Frank C. Eckert, E. T. N. Stein, Luke C. Hines and H. W. Holzhauser.

The next meeting will be held at Atlantic City in June 1919.

NEW YORK

President, Henry B. Smith, Brooklyn.

First Vice-President, Robert S. Lehman, New York.

Second Vice-President, O. B. Chapman, Richfield Springs.

Third Vice-President, Walter B. Tongue, Poughkeepsie.

Secretary, Edward S. Dawson, Syracuse.

Treasurer, Frank Richardson, Cambridge.

Executive Committee, Charles N. Lehman, Tottenville; Pineus Hertz, New York; and Herbert Wright, Syracuse.

PENNSYLVANIA.

President, Charles R. Rhodes, Hyndman.

First Vice-President, Ambrose Hunsberger, Philadelphia.

Second Vice-President, James F. Kane, Pittston.

Secretary, Robert P. Fischelis, Philadelphia.

Treasurer, Francis H. E. Gleim, Lebanon.

Assistant Secretary, Louis Saalbach, Pittsburgh.

Local Secretary, C. Lyston Jones, Easton.

Executive Committee, W. H. Knoepfel, for 3 years.

Next meeting Forest Park, Pa., 4th week of June 1919, unless Executive Committee makes other arrangements prior to January 1, 1919.

WEST VIRGINIA.

President, Roy B. Cook, Huntington.

First Vice-President, John W. Davis, Wheeling.

Second Vice-President, John A. Fitch, Charleston.

Secretary, P. H. Kelly, Thurmond.

Treasurer, G. H. Dent, Morgantown.

WISCONSIN.

President, A. F. Wussow, Milwaukee.

First Vice-President, C. B. Curran, Eau Claire.

Second Vice-President, A. F. B. Mentzel, Milwaukee.

Third Vice-President, L. Urheim, Eau Claire.

Secretary, Edw. G. Rauber, Milwaukee.

Treasurer, Henry Rollman, Chilton.

The 1919 convention will be held in Eau Claire, the last week in June.

UTAH.

President, John L. Boyden, Coalville.

First Vice-President, Frank J. Folland, Salt Lake City.

Second Vice-President, Chas. E. Driver, Ogden.

Treasurer, Geo. A. Huscher, Murray.

Secretary, Eugene L. Wade, Salt Lake City.

THE PHARMACIST AND THE LAW.

VENEREAL DISEASE ACT OF ONTARIO.

The Act for the Prevention of Venereal Diseases passed by the Ontario Legislature, came into force July 1. It provides that anyone publishing in a newspaper, magazine or other periodical, or posting up any statement or advertisement intended to recommend the purchase of any article, medicine, appliance, instrument or treatment for the alleviation or cure of venereal disease is liable to a fine of from \$100 to \$500.

It permits the filling of prescriptions, of regular medical practitioners, by pharmacists and the selling of patent or other proprietary medicines for the cure or alleviation of venereal diseases, provided that these remedies have been approved by the regulations of the Act.

The following remedies are approved by the Board named in the Act (Sec. 13) by the Legislature of Ontario:

For Gonorrhea: Silver, iodine, mercury, potassium, zinc, lead, and other mild astringents in their various forms. Essential oils, alkalies, balsams, and hexamethylene-tetramine.

For Syphilis: The arseno-benzol derivatives administered intravenously. Mercury in its various forms administered orally, intramuscularly and by inunction. The iodides, administered orally. The use of tonics, good food and life in the fresh air. The latter is essential to successful treatment.

For Chancroid: Carbolic acid, alcohol, silver salts, antiseptic dressings.

None of these remedies nor any other remedy, form of treatment, appliance, instrument or medicine, patent, proprietary or otherwise, shall be sold, offered for sale, recommended, suggested, advertised or promoted by anyone as a treatment for venereal or genito-urinary disease, unless such remedy,

medicine, treatment, appliance of instrument is prescribed by a legally qualified practitioner.

VENEREAL DISEASE REGULATIONS.

Regulations for adoption by State Boards of Health for the prevention of venereal disease have been suggested by the United States Public Health Service. They provide for registering all cases and quarantine if necessary for protection of public health. One section forbids druggists to prescribe treatment and reads as follows:

Rule 6.—Druggists forbidden to prescribe for venereal disease.—No druggist or other person not a physician licensed under the laws of the state shall prescribe or recommend to any person any drugs, medicines or other substances to be used for the cure or alleviation of gonorrhea, syphilis, or chancroid, or shall compound any drugs or medicines for said purpose from any written formula or order not written for the person for whom the drugs or medicines are compounded and not signed by a physician licensed under the laws of the state.

NARCOTIC NEWS.

Federal Judge Dickinson, Philadelphia, a few weeks ago sentenced seventeen drug peddlers. The sentences ranged from eighteen months to two years.

Several important arrests have recently been made in St. Louis and Baltimore. Morphine, cocaine and heroin, to the value of \$10,000, were seized by Federal officers in a raid upon the rooms of Frank Krissler, a confidential clerk in the employ of the Adams Express Co., who lived on Jefferson Street, Hoboken, N. J. The drugs were bottled and it is believed that they were stolen from shipments to the Army Medical Department.

BOOK NOTICES AND REVIEWS.

Pharmaceutical Botany. By Heber W. Youngken, Ph.G., A.M., M.S., Ph.D. Second Edition, Revised and Enlarged with 195 Illustrations. Publishers P. Blakiston's Son & Co. Philadelphia. Price, \$2.00, cloth.

The degrees earned by the author of "Pharmaceutical Botany" indicate his experience in pharmacy, and his studious application in pharmacy, pharmacognosy and botany is shown in the preparation of the

book. Thoroughness is evident and also a desire to communicate information relative to the subject that is necessary and will be serviceable for pharmacists. Extensive detailed studies of the structures of individual drugs have not been attempted, but more by giving a type; the book supplies knowledge of structural botany; the systematic arrangement is excellent and the text is characterized by succinctness and clearness in definitions

and descriptions. The volume has 386 pages which present essential information of pharmacognosy and botany that a pharmacist should have for an intelligent understanding of the official vegetable *materia medica*. The first edition of the book was prepared to meet the needs of students in pharmacy and in the revision and enlargement the same purpose has been kept in mind; while, therefore, especially adapted for students, pharmacists will find the book of interesting usefulness. Professor Youngken is professor of botany and pharmacognosy in the Philadelphia College of Pharmacy.

PUBLICATIONS RECEIVED.

The Pharmacist's Place, by J. U. Lloyd, reprint from *Eclectic Medical Journal*, 1887.

An American Crusade, a phase of the evolution of American Medicine and Pharmacy in the struggle against transplanted European cruelty, J. U. Lloyd. We reprint the concluding paragraph: "Lastly, while we accept that there is no man without the mote in his eye, may we not hope that one and all, regardless of medical politics, may realize that practicing physicians and educated pharmacists, not less than the leaders in both medicine and pharmacy, are allies in a progressive humanitarian cause; the differences of opinion are justified by distinctions in education, opportunities and location, but that all are alike working toward a common end—the uplift of humanity?"

Courses in Applied Science, an announcement of the Philadelphia College of Pharmacy.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus.

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGES OF ADDRESS SINCE MAY 28, 1918.

BRACONIER, F.

From U. S. S., Brooklyn, N. Y.

To 1145 Main St., Brockton, Mass

BRICKELMAIER, P. H.

From 220 Greenwich St., New York, N. Y.

To 38 Park Place, New York, N. Y.

BURNS, W. C.

From 240 E. Houston Square, San Antonio, Texas.

To 303 E. Houston Square, San Antonio, Texas.

MASS, ARTHUR C.

From 1121 West 31st St., Los Angeles, Cal.

To 308 East 8th St., Los Angeles, Cal.

BETZEL, I. L.

From Camp Lewis, Washington.

To 1426 East 18th St., Portland, Ore.

FRENCH, L. H.

From U. S. S. Baron de Kalb, N. Y.

To Residence Unknown.

BERGREN, E. R.

From Ames, Iowa

To Odebolt, Iowa.

WOEHNER, WALTER A.

From 101 S. 3rd St., Missoula, Montana.

To 117 Fourth St., San Francisco, Cal.

NORTH, H. H.

From 981 Simpson St., New York, N. Y.

To Home Add.—164 Summit Ave., West Hoboken, N. J.

Army Add.—Early Treatment Station, 12 Clay St., Baltimore, Md.

CHANGE OF NAME.

FRED MUELLER.

2129 University St., Berkeley, Cal., to Fred A. Mueller.

RESIGNED.

SAMPER, JULIO.

517 Stevens St., Indianapolis, Ind.

DECEASED.

DARE, CHAS. F.

Bridgeton, N. J.

DEWOODY, WM. L.

516 West Fourth St., Pine Bluff, Ark.

LEIS, GEORGE.

747 Mass. Ave., Lawrence, Kans.

MILLER, WM. L.

Saginaw, Mich.

ALBERT ETHELBERT EBERT, PH.D.

CHICAGO, ILL.

1840-1906

President of the American Pharmaceutical Association, 1872-1873



ALBERT E. EBERT

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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NO. 9

ALBERT ETHELBERT EBERT.

The meeting of the American Pharmaceutical Association in Chicago brought back to memory the lives of those who sojourned here and labored for pharmacy and the Association in the earlier years of its history. An interesting lecture on "Ebert, Oldberg and Hallberg" was delivered by Dr. H. M. Whelpley before the Historical Section in which he spoke of the characteristics of these pharmacists as they had impressed him during the many years of his association with them. The historical exhibit on this occasion was largely concerned with Mr. Ebert whose life is closely linked to the Association through his active participation in its affairs and his legacies. No attempt will be made to present a sketch of the deceased but only brief references to a few of his activities.

Mr. Ebert joined the American Pharmaceutical Association in 1864, was its third vice-president in 1868-1869; and president in 1872-1873. He was one of the delegates to the International Pharmaceutical Conference held at Paris in 1867 and to the British Pharmaceutical Conference the same year. He was a charter member of the Chicago Veteran Druggists' Association; a member of the Revision Committee of the U. S. Pharmacopoeia in 1870, vice-president of the Convention in 1900 and member of the board of trustees. He became connected with the Chicago College of Pharmacy in 1868 and was for a number of years professor of pharmacy in this institution. He graduated from the Philadelphia College of Pharmacy in 1864 and later received the honorary degree of master of pharmacy. In 1868 he received the degree of doctor of philosophy in the University of Munich.

By his will, most of the property he was possessed of was given to the American Pharmaceutical Association and this legacy, according to the last report of the treasurer, amounts to \$4,324.47. The Ebert Prize Fund was established by the deceased in 1873 and now has a value of \$1,133.27.

The last words spoken by Mr. Ebert were: "The American Pharmaceutical Association, it was my life; it gave me a profession."

Every man at time of Death,
Would fain set forth some saying that may live
After his death and better humankind;
For death gives life's last word a power to live,
And, like the stone-cut epitaph, remain
After the vanished voice, and speak to men.

—Tennyson.

EDITORIAL

E. G. EBERLE, Editor

253 Bourse Bldg., PHILADELPHIA

THE SIXTY-SIXTH ANNUAL CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE valuable results of a convention are estimated from its accomplishments or the progress made in its laudable endeavors. The attendance at the Chicago meeting of the American Pharmaceutical Association was not as large as it would have been in normal times, but the registration records were very satisfactory and beyond the expectations of officials prior to convention dates. The accession of membership exceeded that of last report; 410 names were added during the year.

Throughout the proceedings the purpose to advance the opportunities of pharmacy was evident, and this determination found expression in the transactions of the affiliated bodies, of the Sections, the House of Delegates and the General Sessions of the Association.

Federation of the Drug Industries did not become an accomplished fact, but the movement has progressed by the expansion of the National Drug Trade Conference through the inclusion of delegates from the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties. Another step toward federation was taken by enlarging the functions of the House of Delegates of the A. Ph. A. and admitting representatives of State Pharmaceutical Associations to participate in its deliberations and promotions. Quoting from the report of the Federation Committee: "The National Drug Trade Conference and the House of Delegates will be as two piers of a great bridge, and when, as the years go on, there is completed between the two a connecting span in the shape of service features, so vitally needed in American Pharmacy, the federation will then be a realized dream."

The conclusions reached by the majority in attendance were that if a Pharmaceutical Corps is established in the U. S. Army only properly qualified pharmacists will be commissioned in that department. It was also recognized as essential that Congress and the public must be convinced of the significance of pharmaceutical service. In the present crisis coöperation with the Government in conservation is of paramount importance, and both the desire and ability to be helpful were clearly indicated in a number of the papers presented.

As a part of the program of the Scientific Section, Dr. H. H. Rusby delivered a lecture, illustrated by lantern slides, on "The Recognition at Sight of Poisonous and Medicinal Properties in Unknown Plants;" a series of papers dealt with the effect of the war on drug supplies, the manufacturing pharmacists, chemists, re-

tail pharmacists, etc., while others related to the development of materia medica. Instructive discussion in the Section on Practical Pharmacy and Dispensing added value to contributions on the conservation of alcohol, sugar and glycerin, all important items of the conservation list. In the Section on Commercial Interests, following the reading of a paper by Dr. A. R. L. Dohme, action was taken to provide for a Conservation Committee to which the Association signified its approval. Related work is now also engaging the Committee on Revision of the United States Pharmacopoeia and that of the National Formulary, all of which should convince the Surgeon General, the Medical Department of the Army, and Congress, that pharmacists have contributed, can, do and are willing to render service of the highest importance to the Medical Department, and that they are entitled to better recognition than has so far been accorded to them. The remarks made before the Association by Colonel Henry Raymond, representing the Medical Department of the U. S. Army, emphasized the necessity of furnishing convincing proof that pharmacists are in a position and qualified to render an indispensable service to the Medical Department,—he admitted that in the Army rank made greater efficiency and authority possible. It required no stretch of imagination to deduce that technicians and professional men should serve in the capacity for which they are qualified by training and education and should be given commissions commensurate with the service. Without unveiling his thoughts he commended the dentists for their past activities, and referred to their signal success in having a dental corps made part of the Medical Department of the U. S. Army.

The report of the Committee on the Status of Pharmacists in the Government service, printed in this issue of the JOURNAL, is of particular interest. The recommendations of F. H. Freericks, presented in a paper, that provisions be made now for looking after the welfare of pharmacists when they return from service abroad, received the hearty endorsement of the Association.

Provisions were made for a committee to devise ways and means for the creation of a loan fund for distressed pharmacists in the war zone.

Another subject—and this will be the final consideration of this writing—was presented in several papers and addresses, and related to the separation of pharmacies and drug stores. A committee was appointed to study the proposition, not only from the standpoint of practicability but of necessary legislation and applicable school curricula for both divisions. The thought is not new, and such distinction obtains in some European countries. It may not be altogether impracticable to make a division of this kind at this time, but as the convenience of the public enters into the move along with the inclinations of druggists and pharmacists considerable time will elapse before workable plans are stabilized for the decided changes that are involved. The general expressions on the

subject, however, indicate that there are some who would pursue exclusively the practice of pharmacy if those who are most interested in merchandizing would be willing to discontinue the pharmaceutical departments of their stores, and there are, doubtless, many druggists who would welcome the opportunity.

There was about a balance of arguments, pro and con, relative to the practicability of the proposition. The majority admitted that if it was possible to effect such a change pharmacy would acquire its professional standing and the druggists would attain a higher degree of proficiency and more general success in the business world. In other words, it was acknowledged that there was a degree of incompatibility under present conditions which interfered with the development of both pharmacy and the drug business.

The suggestion was made that because of the present status of the drug business recognition was not forthcoming to pharmacy by the establishment of a pharmaceutical corps in the U. S. Army. On this question the consensus of opinion was that there were many qualified American pharmacists, that their work conclusively proved this, and there was no expectancy of commissioned rank except for those pharmacists who could meet the requirements proposed in the Edmonds Bill.

Cicero said, "Certain signs precede certain events;" someone else has paraphrased this: "Great events have sent before them their announcements."

E. G. E.

PHARMACY IS AN "ESSENTIAL SPECIALTY" OF ARMY MEDICAL PRACTICE.

LET us be frank. The "lion in the pathway" of securing the establishment of a Pharmaceutical Corps in the U. S. Army is Surgeon General Gorgas, who has consistently and persistently opposed the movement for the establishment of the corps, the crux of his objection being that the practice of pharmacy in the Army is a non-essential specialty. (See Memorandum of War Department, February 13, 1918.)

There is, of course, a ready and complete answer to this. If pharmacy, which is a branch of therapeutics, is essential in civil life, it is equally essential in Army life. If the 150,000 physicians of the country require 50,000 retail pharmacists for civil medical practice, as they do, and if it is necessary for the 48 States of the Union to have pharmacy laws for the protection of the public against the serious dangers of incompetency in the compounding of drugs and poisons, as they have—surely the men of the Army deserve as skilled pharmaceutical service as they received at home, and this they do not get. There is no commissioned rank for pharmacists in the Army and no adequate pharmaceutical service.

We believe that the Surgeon General stands practically alone in his attitude. The American Medical Association, which stands for the medical profession of this country, has earnestly and enthusiastically urged the commissioning of pharmacists in the Army because "it would be but simple justice to the pharmacists themselves, because the usefulness of the Medical Corps will be greatly augmented, and lastly, and most important, because the efficiency of the Army demands it." And we are confident that if the matter of establishing a Pharmaceutical Corps in the Army was referred by vote to the men in the field there would not be the slightest doubt of its establishment.

The pharmacists of this country have repeatedly approached the Surgeon General on the subject of a Pharmaceutical Corps for the Army, but he is apparently adamant in his opposition. Why? "Is it because he is preëminently a sanitarian and not a therapist, and is more sympathetic to preventive medicine (of which sanitation is a branch) than to curative medicine (of which therapeutics and pharmacy are branches), as his establishment of a Sanitary Corps in the Army, while opposing the establishment of a Pharmaceutical Corps, might imply?" "Or is it"—and we believe this—"because he does not know and can not visualize the possibilities of an adequate and properly systematized pharmaceutical service in the Army?"

Possibly, also, he fears that if a Pharmaceutical Corps were established the Medical Department would be swamped by a large number of inadequately trained pharmacists when only a relatively small number of highly trained men would be needed.

But these objections are minor. The big, vital question is: "*Are trained pharmacists essential for the better protection of the health and lives of the men in the service?*" and there can be no doubt on this question in the light of the experience of our allied armies abroad with their pharmaceutical corps and the wonderful work the latter have done.

We believe that Surgeon General Gorgas—for whom we have the highest respect as a scientist and as a man—is honest and sincere in his opposition to a Pharmaceutical Corps, but he has been ill-advised, *looking towards the future needs of the Army*. The pharmacists of this country do not want a Pharmaceutical Corps *as pharmacists*, but as American citizens, and because they know that American Pharmacy can be made most helpful to the Medical Department.

The Military Surgeon (August 1918, 207) estimates editorially that there are 115,500 physicians in the United States available for all purposes, being 80,000 under 50 years of age; and states that "we are probably not suffering this moment from lack of medical officers, as there are 25,000 of us, but, should volunteers fail, we soon would be in dire need of them to supply our rapidly increasing forces." The ratio of medical men in the regular Army has been 7 to 1,000 of

military population. This war is more destructive of medical men than any previous war, and if prolonged will require 15 per 1,000. (In the British Army the ratio is now 19 per 1,000) or 75,000 for five million troops or, practically, all the active medical men of the country!

In the light of these facts it seems to us that the Surgeon General could exhibit no greater prescience than to conserve the medical forces of the country by utilizing properly trained pharmacists as medical assistants in first aid, as laboratory technicians, and in releasing medical men from non-medical duties, as well as in technical pharmaceutical work.

As Torald Sollmann (*Journal A. M. A.*, August 10, 1918) so well says, in his article on "Pharmacology in the War"—"It is the problem of the war for a country to meet and to defeat not only the human enemy, but the forces of nature. Severe necessity arises in many forms, in many new garbs. That, however, brings out one of the compensations of the war. *Necessity is the mother of invention, of conservation, of efficiency. The happy-go-lucky ways of peace no longer suffice. Every form of human endeavor is forced to the supreme effort.*"

American Pharmacy stands ready to make the supreme sacrifice, if needs be. Why ignore it?

J. W. ENGLAND.

AMENDMENT TO REGULATIONS, UNITED STATES PUBLIC HEALTH SERVICE.

No. 4.

TREASURY DEPARTMENT,
BUREAU OF THE PUBLIC HEALTH SERVICE,

Washington, July 16, 1918.

To Commissioned Officers, Acting Assistant Surgeons, Pharmacists, and Others concerned:

Paragraph 87, Regulations of the United States Public Health Service, approved March 4, 1913, as amended June 19, 1914, is hereby amended to read as follows:

Par. 87, Pharmacists, when on duty at United States marine hospitals or quarantine stations, shall, when practicable, be entitled to quarters, necessary household furniture for same, subsistence (as allowed previous to Mar. 4, 1913), fuel, light, and necessary laundry work, and when on duty at stations where there are no quarters belonging to the service, they shall be entitled to commutation therefore at the rate of \$40 a month for quarters, fuel, and light, and \$60 a month for subsistence and all other allowances.

RUPERT BLUE,
Surgeon General.

Approved:

L. S. ROWE,
Acting Secretary of the Treasury.

Approved

WOODROW WILSON,
The White House.

THE ANALYSIS OF LIQUID AND AROMATIC EXTRACTS OF CASCARA SAGRADA, AND THE INTRODUCTION OF A MANGANESE NUMBER FOR THE SAME.*

BY L. E. WESTMAN AND R. M. ROWAT.

Much work¹ has been carried out in connection with the examination of *Rhamnus purshiana* bark (cascara sagrada) from the viewpoint of establishing its various constituents and their chemical nature. For the analyst who is called upon to examine extracts of this drug there is no very definite data or procedure available and the relative meaning of constants obtained is not easily judged from results so far published. When it is considered that anywhere from 500 to 2,000 tons of this bark comes upon the American market annually, it would seem that more than odd partial analyses of extracts and trade preparations made from it would be of some value. Having the opportunity to work on a very large number of different samples, we have attempted to supply some general averages for constants observed from commercial samples just as they are found on the market. The most important objective was, however, to devise a means of estimating quantitatively the amount of actual cascara extractive present. Within limits this has been done by the development of a manganese number for these extracts.

Tichborne² reports the examination of some 29 samples of liquid extract of cascara sagrada. He found that liquid extracts of this drug when prepared according to B. P. methods yielded 24 to 25% solids. The drying and non-drying properties of these preparations were examined. The non-drying samples were found to contain glycerin, and excessive reduction with Fehling's solution was taken as an indication of adulteration of the sample. Mort and Rotlie³ reports the analysis of a single sample of cascara. The tests they make are in no respect very distinctive.

Before approaching work of this kind a comparative knowledge of the requirements of the various pharmacopoeias is essential as a constant guide. This information is outlined below for the reason that there seems to exist sufficient differences in methods of percolation to give rise to a wider range of values for certain determinations than is generally taken into account.

In the British Pharmacopoeia⁴ and Codex, Cascara Sagrada is defined to be "The dried bark of *Rhamnus purshiana* D. C. and collected at least one year before being used." The official liquid preparations as defined in this edition are: (1) Liquid Extract of Cascara Sagrada containing the extract from 100 Gm. of No. 20 powder made up to 1000 Cc. with distilled water and 250 Cc. of 90% alcohol. Instructions are given to exhaust the bark with distilled water by the percolation process. This reads as follows:¹

"Moisten the solid materials with the prescribed quantity of menstruum, set aside for four hours in a well closed vessel, pack in a percolator and add sufficient of the menstruum to saturate the materials and leave a layer of liquid above. Macerate for 24 hours. Then allow percolation to proceed slowly until the percolate measures about three-fourths of the volume required for the

* Published with the permission of the Minister of Inland Revenue, Canada.

finished tincture. Press the marc, mix the expressed liquid with the percolate and add sufficient of the menstruum to produce the required volume. Clarify by subsidence or filtration if necessary."

Following this the percolate is evaporated to 600 Cc. and the alcohol, previously mixed with sufficient distilled water to produce the required volume, is added.²⁶ An aromatic Syrup of Cascara, containing liquid extract of cascara, tincture of orange, alcohol, cinnamon water, and syrup is also an official preparation. This syrup is a solution of sucrose and water of a Sp. Gr. of about 1.330. The B. P. Codex 1911 mentions⁴ 17 extracts and compounds in which cascara may be employed. Four of these are compound tablets or pills. The rest are liquid, fluid, or aromatic extracts or mixtures. They may contain, in general, any combination of harmless aromatic oils, tinctures, licorice, glycerin, alcohol, alkalies, ammonia, or chloroform water. In order to destroy the natural bitter taste of the cascara, lime, magnesia, potassium hydroxide, ammonia, sodium and ammonium salts, and zinc oxide⁸ have been used during percolation. Chloroform water is added to prevent active fermentation, while the use of alkalies follows from the incompatibility of extracts of cascara with acids or strong solutions of mineral salts.

Three official preparations are mentioned in the United States Pharmacopoeia. They are the extract⁹, the fluidextract,¹⁰ the aromatic fluidextract.¹¹ The fluidextract contains a gramme equivalent of the bark per Cc. as well as 250 Cc. of alcohol in every 1000 Cc. of standard extract. No. 40 powder is used and the method of percolation is as follows:¹²

"To 1000 Gm. of the dried drug add 5000 Cc. of boiling water, mix thoroughly and allow it to macerate in a covered container in a warm place for two hours. Then transfer the moist drug to a tinned or enamelled percolator and allow percolation to proceed, gradually adding boiling water until the drug is exhausted. Evaporate the percolate on a water bath to the volume specified and when cold add the alcohol directed and mix thoroughly."

The official aromatic fluidextract of cascara in U. S. P. is a product debittered by magnesium oxide and contains glycerin, licorice and alcohol along with small amounts of benzolsulphinide, methyl salicylate, oil of cinnamon, oil of anise, and oil of coriander.

In evaluating relatively a large number of preparations the following data grouped under various headings has been derived. We have divided the samples into two classes, as follows:

Class (1). Aromatic extracts of cascara sagrada and unofficial trade preparations containing licorice, glycerin and aromatics.

Class (2). Samples deemed to be genuine fluid extracts of cascara sagrada.

SPECIFIC GRAVITY.

By this determination alone a close line may be drawn between those samples which are likely to prove to be aromatic and those likely to be found to be liquid or fluid extracts of cascara. Determinations were made directly at room temperature (20° C.) by means of a set of hydrometers. Finer work than this does not yield correspondingly more valuable results. The following table¹³ deals with 136 samples, which are divided into two classes as defined above:

TABLE I.

| Class (1). Range of sp. gr. | No. of samples in range. |
|--------------------------------|--------------------------|
| 1.000 to 1.100..... | 5 |
| 1.100 to 1.200..... | 22 |
| 1.200 to 1.300..... | 9 |
| 1.300 to 1.400..... | 1 |
| | — |
| | 37 |
| Class (2). | |
| Below 1.030..... | None |
| 1.030 to 1.040..... | 1 |
| 1.040 to 1.050..... | 3 |
| 1.050 to 1.060..... | 14 |
| 1.060 to 1.070..... | 33 |
| 1.070 to 1.080..... | 40 |
| 1.080 to 1.090..... | 4 |
| 1.090 to 1.100..... | 4 |
| | — |
| | 99 |

Squire's Companion to the B. P.¹⁴ gives the Sp. Gr. of liquid extracts of cascara sagrada as 1.06. It would appear from our work that a suitable range would be from 1.05 to 1.08. Working by the method quoted above for B. P. percolation, we obtained on two trials, values of 1.058 and 1.057, as the Sp. Gr. of the finished extract. By the U. S. P. method, working on the same bark we obtained 1.078 and 1.079 as the Sp. Gr. of the extract thus prepared. It is thus necessary to recognize a large range in order to include all the possibly genuine samples. Preparations below this range could, by other determinations, be shown to be diluted extracts, while samples above this range invariably contain more solids than is normally possible to extract by any official method of percolation.

No such limits of Sp. Gr. as have been prescribed for fluid extracts of cascara sagrada can be laid down for preparations of the order of class (1). The Sp. Gr. of aromatic syrups of cascara B. P. and of aromatic fluidextract of cascara sagrada U. S. P. calculated from pharmacopoeal requirements, should be 1.17 and 1.18, respectively, and in class (1) 18 samples very closely approach these figures, yet from the Sp. Gr. alone it would be rash to infer that any given sample were one or the other of these official preparations. Indeed the majority of the samples in class (1) are not official, although the greater number show Sp. Grs. which are approximately those of the official aromatic preparations.

ALCOHOL.

The alcohol content V/V of the various official liquid preparations of cascara sagrada may be readily shown by reference to the requirements of the various pharmacopoeias to be approximately as follows:

| Name of extract. | Alcohol V/V %. |
|-------------------------------------------|----------------|
| Fluid Extract Cascara Sagrada B. P..... | 22.5 |
| Aromatic Syr. Cascara Sagrada B. P..... | 13.5 |
| Fluidextract Cascara Sagrada U. S. P..... | 24.0 |
| Aromatic Cascara Sagrada U. S. P..... | 24.0 |

From an inspection of the above figures, and from consideration of the alco-

The problem of relatively evaluating a fluid extract on the basis of its total solids is more complicated than would appear at first sight. Squire would allow a range of from 17 to 27%.¹ Reasonable commercial practice and theoretical possibilities conflict on this point. The chief causes of this variation are: (1) In the hands of different operators results obtained by the same official method of percolation may differ. (2) The Official U. S. P. and B. P. methods of percolation themselves differ and yield correspondingly different results in extracting the same drug.

We extracted two 50 Gm. samples of genuine cascara bark by the B. P. method of percolation and obtained two liquid extracts yielding 21.79 and 21.03% of total solids. Working on equal amounts of the same bark, but following the official method of U. S. P. percolation, we obtained extracts yielding 30.50 and 31.48% of total solids. This difference may be traced directly to the variation of pharmacopoeial directions. The U. S. P. requires the drug to be exhausted with boiling water, and the percolate, to be evaporated to a definite volume. Neither the amount of boiling water to be used nor the size of the portions are specified. We found the volume of water necessary to completely exhaust the cascara bark to be exceedingly large compared with the volume to which the percolate must subsequently be evaporated. To completely exhaust 50 Gm. bark 2000 Cc. of boiling water in 75 Cc. portions were required, and this had to be evaporated to 37.5 Cc. Such a rigorous extraction, although theoretically official, would be very impractical commercially. At the same time it may be pointed out that extracts of cascara sagrada containing a greater proportion of total solids than Squire would allow may very readily be prepared by following official methods of percolation.

A well-known firm of manufacturing pharmacists in a private communication supplied us with data relative to the possibility of obtaining a uniform extract from cascara bark. Out of 24 lots of this drug, working on a commercial basis, the extractive never fell below 18.8% and exceeded 22% in only one instance. On this particular lot the extractive measured 26.6%. They were using the official U. S. P. method of percolation. It seems evident then that the official methods may be translated into a number of uniform procedures which may differ in results over a wide range according as the detail varies. All these considerations must be taken into account before passing an opinion on any sample based on a determination of its total solids.

SOLIDS PRECIPITATED ON DILUTION WITH WATER.

On dilution with water an aromatic extract of cascara sagrada which contains licorice or glycerin in pharmacopoeial proportions will retain all its solids in solution. On the other hand, a liquid extract of cascara whose solids are held in solution by virtue of its alcohol content will, when diluted, give a measurable precipitation, when the alcohol content drops below 10.0%. Our determination of this value was made by dropping 5 Cc. of extract into 95 Cc. of water and filtering off on a tared filter.

We tested 75 samples in this manner with the following results:

TABLE IV.

| Class (1). Range of solids precipitated on dilution | Number of samples in range. |
|-----------------------------------------------------------|----------------------------------------|
| None..... | 20 |
| 1.0 to 2.0%..... | 2 |
| | — |
| | 22 |
| Class (2). | |
| None..... | 1 (this sample contained only 3% alco- |
| 0.5 to 1.0%..... | 5 hol and no precipitation was to be |
| 1.0 to 2.0..... | 24 expected.) |
| 2.0 to 3.0..... | 17 |
| 3.0 to 4.0..... | 4 |
| 4.0 to 4.5..... | 2 |
| | — |
| | 53 |

It is more than probable that any sample of Class 2 that is found to give less than 1.5% solids on dilution by this method will be found to be a diluted extract, from alcohol or other determinations.

REDUCING SUGARS.

We adopted the practice of taking up to a definite volume the filtrate from the determination of solids on dilution and determining the reducing sugars in an aliquot thereof by means of Fehling's solution. In our results sugars are reported as glucose. There is evidently a normal content of such sugars for genuine fluid extracts of cascara sagrada, which varies within quite narrow limits from 5 to 7.5%. Aromatic extracts are always much lower than this and run from 1 to 3%.

TABLE V.

| Class (1). | | Class (2). | |
|----------------------------------------------------|--------------------|----------------------------------------------------|--------------------|
| Range of reducing sugars calculated as glucose. | No. of samples. | Range of reducing sugars calculated as glucose. | No. of samples. |
| 0.0 to 5%..... | 16 | 4.0 to 5.0%..... | 9 |
| 5.0 to 10.0..... | 7 | 5.0 to 8.0..... | 33 |
| | — | 8.0 to 10.0..... | 12 |
| | 23 | | — |
| | | | 54 |

All genuine aromatic extracts in Class 1 come in the group from 0.0 to 5.0%. Samples above this range in this class are nondescript trade preparations. All samples in Class (2) running above 7% gave abnormally high total solids.

LICORICE, GLYCERIN AND AROMATICS.

These substances are used to disguise the bitter taste of the cascara. No quantitative work was attempted save in the case of glycerin and even in this case an exact determination presents considerable difficulty. An approximation was arrived at by the method of boiling off the glycerin in steam. Ten Cc. of the aromatic extract were slowly heated to 160° C. and by the addition of small quantities of water from time to time, the glycerin was boiled off. The difference in weight between the solids remaining at this temperature and those remaining after drying at 110° C. was considered to represent the glycerin. A certain increase in weight occurs owing to the slow oxidation of cascara solids at 160° C. and it is also possible that some glycerin may become non-volatile during the

process. The sum total of these errors as determined through such suitable blanks as could be devised is not sufficient to destroy the usefulness of the method. The former is the greater of the two errors and may account to a 2% increase of the total solids present after 8 hours at 160° C. By subjecting a mixture of pure glycerin and cascara extract to this treatment it was found that practically all the glycerin could be driven off. It may be calculated that there should be about 25% of glycerin W/V present in U. S. P. aromatic extract of cascara sagrada. Out of 17 samples examined 8 contained less than this amount. The exposure of a few drops of cascara extract on a porcelain plate¹⁶ serves as a very simple and useful test of the nature of any cascara extract. A genuine liquid extract will dry up in a short time to a hard glassy varnish; an extract containing licorice or glycerin will not dry up even after long exposure over days and weeks, while an extract which has been so diluted as to lose the solids held in solution by virtue of its alcohol forms a sticky semi-crystalline mass which does not lose its stickiness for some days. All aromatic extracts examined were found to be non-drying, owing to their licorice and glycerin content.

ASH.

The value of an ash determination becomes evident from a consideration of its variation. If some attempt has been made to debitter the extract by application of lime, or application of the ordinary alkaline debitterants it is quite possible that through contamination or solution these might greatly increase the amount of ash. We found this to be the case. The color of the ash when heated strongly in a muffle is also a good indication of the nature of the sample. The ash from an aromatic extract containing licorice and glycerin will be greyish white; that from samples containing excess of lime salts will be pure white, while the ash of a genuine extract will be some shade of green, depending upon the amount of manganites present. This manganese comes from the bark and is sufficiently soluble in water to be found in this way in the ash. The calcium in the ash is not a constituent which might result from solution of the calcium salts of the bark during percolation. These salts are not removed to any extent by boiling the bark in water but are evidently present in the plant as oxalates and carbonates. From an inspection of the following table it will be seen that samples in Class (1) give ash values of a very wide range. In Class (2), however, the variation would seem to be within more reasonable limits.

TABLE VI.

| Class (1). | | Class (2). | |
|-----------------|-----------------|-----------------|-----------------|
| Range of ash. | No. of samples. | Range of ash. | No. of samples. |
| Below 1%..... | 1 | Below 0.5%..... | 1 |
| 1.0 to 1.5..... | 1 | 0.5 to 1.0..... | 33 |
| 1.5 to 2.0..... | 2 | 1.0 to 1.5..... | 18 |
| 2.0 to 2.5..... | 3 | 1.5 to 2.0..... | 5 |
| 2.5 to 3.0..... | 0 | 2.0 to 2.5..... | 1 |
| 3.0 to 3.5..... | 1 | Above 2.5..... | 1 |
| 3.5 to 4.0..... | 8 | | — |
| 4.0 to 5.0..... | 1 | | 59 |
| 5.0 to 5.5..... | 2 | | |
| — | — | | |

It would seem from our work that a range of 0.75 to 1.1% for the ash of genuine fluid extracts of cascara would not be unjust. Any extracts yielding ash above or below these limits were found to be abnormal in some other respect.

COLOR REACTIONS AND TESTS.

Hubbard¹⁷ reviews the generally known color reactions for the emodin-bearing drugs and we shall not attempt to do more than supplement this work. The presence of emodin (trihydroxymethylanthraquinone) is characteristic of rhubarb, aloes, senna, and cascara. These substances, from their properties, may be found at any time in admixture. The Bornträger¹⁸ reaction is the most convenient means of testing for this class of drugs. The well washed benzol extract of a few Cc. of the acidulated sample is made alkaline. In the presence of emodin a deep red color will appear in the water layer.

Cascara extract will give this test in greater dilution than any other common emodin-bearing drug while senna may fail to respond easily to the test. It must always be remembered that phenolphthalein may also be present. It may be removed by the method of Warren.¹⁹ There is a difference between the colors given by emodin alone and by phenolphthalein alone, in alkaline solution, that is easily distinguished by the eye. The emodin color is a deep red and more like methyl orange in acid solution, while the color from phenolphthalein is a deep pink. In admixture the color is quite distinct from either individual colors, when observed through thin sections of solution. Moreover, the phenolphthalein color fades when the solution is made strongly alkaline and allowed to stand for some time.

Phenolphthalein may also be detected in the presence of emodin by the following procedure: By a careful adjustment of the reaction of the solutions the Bornträger reaction may be modified in such a way as to give a separation of emodin from phenolphthalein. Extract 2 to 3 Cc. of the acidulated cascara extract with 25 Cc. benzol. Wash the benzol several times with water in a separating funnel and make alkaline with a dilute soda solution of known concentration and note approximately the amount used. Both phenolphthalein and emodin will now pass into the water layer. Neutralize this soda solution with dilute sulphuric acid of corresponding strength until two or three drops would suffice to destroy all the red color, shaking well during this operation. Wash the benzol again two or three times with water. The benzol will now contain no appreciable amount of emodin but if phenolphthalein was present some will still remain in the benzol layer, and will now give a pinkish red color to a further alkaline wash of the benzol; in the presence of phenolphthalein this alkaline wash will remain practically colorless. Differences between the solubility of phenolphthalein and emodin under these conditions coupled with the fact that emodin would seem to be a stronger acid than phenolphthalein probably accounts for this reasonably close separation. This method lends itself to fairly rapid work.

In attempting to carry out a Bornträger test for emodin, the operator must always have in mind the possibility that alkalis have been used to debitter any given extract. Many extracts of cascara will give a distinct red emodin test on simple dilution with water. Extracts which have been treated with alkalis and which yield a high ash are frequently so strongly basic that relatively quite large

amounts of acid must be added before a positive Bornträger reaction may be obtained.

All color reactions, when alkaline salts are used as a basis and where the formation of rings of different shades was depended upon to indicate the presence of emodin-bearing drugs other than cascara, were found to be untrustworthy. When the ether extract of any of the emodin-bearing drugs is poured into a solution of an alkaline salt a reddish ring will be formed at the junction of the two layers. This is really a miniature Bornträger reaction. The colors produced in these tests depend more on the concentration of emodin and chrysophanic acid in the ether layer than on any other single factor. The depth of color produced by equivalent amounts of ether extract of cascara, aloes, rhubarb and senna with solutions of borax, sodium hydrate, ammonium hydrate, sodium carbonate, sodium silicate, or any solution of salts alkaline by hydrolysis, were found to range from strong to weak in the order in which the drugs are named. The ether extract of a cascara never failed to give a decided red ring with these alkaline solutions and that of senna with equal regularity gave a much fainter red ring. It is to be noted that a ring such as was given by senna could be obtained by the action of a very dilute ether extract of cascara on these alkaline solutions. The ether extract of a pure infusion of rhubarb will give a blue color when brought in contact with a solution of ferrous sulphate.²⁰ This may be due to the presence of tannic acid. When one tries to follow this reaction in the presence of 50% cascara extract the detection of the rhubarb becomes almost impossible for the reason that, although cascara does not give the same coloration as rhubarb, it does give a color change sufficiently dense to obscure the rhubarb reaction. It is quite safe to say that small percentages of emodin-bearing drugs are much more likely to be missed than they are to be positively identified when present in unknown admixture in cascara. Senna is more commonly used in admixture with cascara than any of the others and is most difficult to detect. The ether extract of senna is said to impart a yellow to brownish coloration to ammonium thiocyanate or ammonium molybdate solutions.²¹ We were unable to obtain either reaction and in each case observed no color change. The absolute detection of aloes has been better worked out than that of any of the other emodin-bearing drugs. Mossler²² claims the ability to detect 0.2 Gm. of aloes in 5 Gm. of rhubarb or cascara. The fluorescence test²³ for aloes using borax solution with the ether extract, is certainly not sufficiently delicate to be of any value as a test for aloes in the presence of much cascara. Most of the samples of aromatic cascara and a large percentage of the trade preparations which we examined yielded a relatively faint test for emodin indicating a very low content of cascara extractive. It is worthy of note also that these same samples gave us unusually low manganese numbers.

MANGANESE NUMBER.

It has been pointed out in a previous article by us²⁴ that the bark of *Rhamnus purshiana* contains a relatively large quantity of manganese which is soluble by the method of percolation. The general usefulness of this determination depends on the fact that the manganese content of this bark is greatly in excess of that of other laxative drugs. It is exceeded by *Rhamnus frangula*, but this bark, by reason of its higher cost and the fact that it is imported is not likely to be used to replace

cascara sagrada. In liquid extracts then where cascara is the only drug extractive present a determination of the manganese content of the ash becomes a quantitative measure of the amount of cascara extractive present. Before trusting such data it is necessary to show that the manganese content of cascara is fairly uniform, or at least to define its limits. On an air-dry basis it has been found that the lower limit is around 0.0093% and the upper limit 0.015%. For the purpose of this work where the manganese is used as a standard the lower limit is the more important and it is safe to say that the greater part of the bark on the market will reach this standard. It is also necessary to show that the methods of percolation extracts this manganese in a uniform manner. It has been shown that for a definite method of percolation the manganese is extracted in proportion to its total amount in the bark.²⁵ For a certain bark it was found that the B. P. method of extracting gave 0.0023% manganese extracted and the U. S. P. gave 0.0028% manganese.

This was due to the fact that in our application of the latter method we used so much water and washed so often that the unusually high value of 30% was obtained for the solids extracted. It is thus possible to establish the minimum amount of manganese that should be present provided genuine cascara bark has been used and no dilution of the extract has taken place. For a liquid extract one Cc. is the equivalent of one Gm. of the bark. The percentage of manganese W/V in the extract is in direct proportion to the amount of cascara solids present. Therefore this percent is a direct measure of the bark equivalent of the extract. With this as a basis we have developed a manganese number for these extracts. We have defined this to be the percent of manganese $W/V \times 100,000$. Our lower limit then would come at 230 for samples prepared from air-dry bark. The amount of manganese will be proportional to the solids extracted; that is, the percent of manganese in the total solids of genuine extracts of cascara should be an approximate constant. Considering all our results where extraction may not have been uniform, we may say that this number varies from 0.01 to 0.02 for all samples found genuine. If the number falls below this limit it is evident that the solids of this extract are not all cascara solids. This manganese test is of particular value in distinguishing *Rhamnus purshiana* and *Rhamnus californica*. The latter contains only about one-third the manganese of the former and yields an extract with a manganese number of about 80. Whether or not some of the extracts examined which show low manganese numbers have been prepared from this bark is a matter of inference. The manganese content of licorice root²⁶ and its extract is sufficiently low not to interfere with the application of this method to aromatic extracts. The presence of no other common laxative drugs destroys to any extent the value of this manganese number. If, on the other hand, these drugs displace cascara, the manganese content will be very much lowered. It is safe to say when considering aromatic extracts that their manganese content varies directly with their cascara content. The method of estimation is that given elsewhere by us,²⁷ except that in the case of liquids, 10 Cc. were taken as a sample, being the equivalent of 10 Gm. of the bark when properly prepared. From the ash of this amount the manganese was determined by the ammonium persulphate method with silver salt as catalyzer. 76 samples are tabulated as follows:

TABLE VII.

| Class (1). | | Class (2). | |
|---------------------|-----------------|---------------------|-----------------|
| Range of manganese. | No. of samples. | Range of manganese. | No. of samples. |
| 0 to 50..... | 8 | 0 to 100..... | 0 |
| 50 to 100..... | 2 | 100 to 150..... | 6 |
| 100 to 150..... | 1 | 150 to 200..... | 6 |
| 150 to 200..... | 5 | 200 to 250..... | 7 |
| 200 to 250..... | 1 | 250 to 300..... | 10 |
| 250 to 450..... | 2 | 300 to 350..... | 6 |
| 450 to 600..... | 2 | 350 to 400..... | 3 |
| 600 to 700..... | 2 | 400 to 500..... | 13 |
| | — | 500 to 600..... | 1 |
| | 23 | 700 to 800..... | 1 |
| | | | — |

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In conclusion, our thanks are due to Dr. J. M. Francis, of the Parke, Davis Co., Detroit, Mich., who kindly supplied us with genuine samples of these barks and practical information of value.

SUMMARY.

(1) Complete data relative to the analysis of 76 samples of extracts of cascara has been given.

(2) It has been shown that methods of percolation are not sufficiently detailed in various pharmacopoeias to allow general uniformity in trade preparations.

(3) A fairly rapid and reasonably conclusive test for the presence of phenolphthalein in emodin-bearing drugs is proposed.

(4) The introduction of a Manganese Number for cascara extract is proposed as a method for determining the amount of cascara extractive present, and as a basis of judgment on the nature of the extract.

REFERENCES.

1. Johnson and Hindman, *Am. J. Pharm.*, p. 387 (1914) 139 articles of reference to *Rhamnus purshiana* are given here.
2. Tichborne, *British Year Book of Pharm.*, 1901, p. 439.
3. E. A. Mort and W. Rothe, *Chem. Abst.*, 1913, p. 3394.
4. B. P. 1914, p. 86, B. P. Codex 1911, p. 268.
5. B. P. Appendix 1914, p. 526.
6. B. P. 1914, p. 377.
7. B. P. Codex 1911, p. 260.
8. Penshuck, *Chem. Abs.*, p. 1097, 1915.
9. U. S. P. IX, p. 147.
10. *Ibid.*, p. 179.
11. *Ibid.*, p. 180.
12. *Ibid.*, p. 176.
13. For detailed analysis of these samples see *Bulletin No. 386 "Cascara Sagrada,"* Dept. of Inland Revenue, Ottawa, Can.
14. Squire's Companion to B. P. p. 410 (1916).
15. *Ibid.*
16. C. R. Tichborne, *British Year Book of Pharm.*, p. 439 (1901).
17. *J. Ind. Eng. Chem.*, 9, 518 (1917).
18. *Z. Anal. Chem.*, 19, 165 (1880).
19. Warren, *Amer. Jour. Pharm.*, Oct. (1914), p. 444.

20. W. S. Hubbard, *J. Ind. Eng. Chem.*, 9, p. 520 (1917).

21. *Ibid.*

22. Mossler, *Pharm. Post*, 46 (1917), p. 313.

23. U. S. Pharmacopocia, IX (1916), p. 37.

24, 25, 26, 27. Westman and Rowat, *J. Am. Chem. Soc.*, March, pp. 559, 560, 561 (1918).

THE LABORATORIES OF THE
INLAND REVENUE DEPARTMENT,
OTTAWA, CANADA.

THE RECOGNITION AT SIGHT OF POISONOUS AND MEDICINAL PROPERTIES IN UNKNOWN PLANTS.*

BY H. H. RUSBY, M.D.

The following paper is based on three simple facts:

1. There are certain groups of plants whose members are so uniform in medicinal or poisonous properties, or both, that the mere recognition of a plant as belonging to one of them is sufficient to indicate its general medicinal usefulness or its dangerous nature.

2. Associated with these physiological relationships are genetic relationships which are clearly indicated by the structural characteristics.

3. These structural characteristics are so manifest that the physician or pharmacist who possesses a fair practical knowledge of structural botany can at once recognize them, and thus be enabled, in cases of emergency, to utilize the plant medicinally or to avoid it if poisonous, in the absence of other knowledge concerning it.

Centuries ago, before the relationships among plants were understood, and when there was a complete absence of knowledge concerning the nature of medicinal action, mankind believed in divine revelation regarding medicinal treatment, which was supposed to be afforded only to the priesthood, who based thereon their claims to service as physicians. Later, a belief developed that this revelation had been made to all mankind, through the impression upon each medicinal plant of some visible sign of the nature of its medicinal action. This idea persists to some extent to the present day. One of my earliest recollections was that of being taken out by a neighbor, descendant of an old family of Dutch settlers, who explained to me the theory of signatures. "You will find," said he, "if you hunt close enough, that every plant has a sign somewhere that shows what part of the body it is good for." We pharmacists see this belief perpetuated in the common names of many of our drugs, as the blood root, the liver leaf, Solomon's seal, golden seal, lungwort moss, snake root and Devil's bit.

There have been various other so-called methods by which one was supposed to be able to judge the physiological properties of plants. A quarter of a century ago, a story went the rounds of the public press to the effect that the peculiar lurid-purple color that we observe upon the stem of the castor-oil plant, the pokeberry and the angelica, was always indicative of medicinal or poisonous properties, or both. I remember another to the effect that finely divided leaves, as seen

* A lecture, illustrated by lantern slides, before the Chicago Convention, A. Ph. A., 1918. Contributed to Scientific Section.

in conium and ragweed, possessed the same significance. Probably all here present are familiar with the story that has several times circulated in American newspapers, and doubtless will do so again, that poisonous fungi can always be known by their turning a silver spoon black when used for stirring them in cooking.

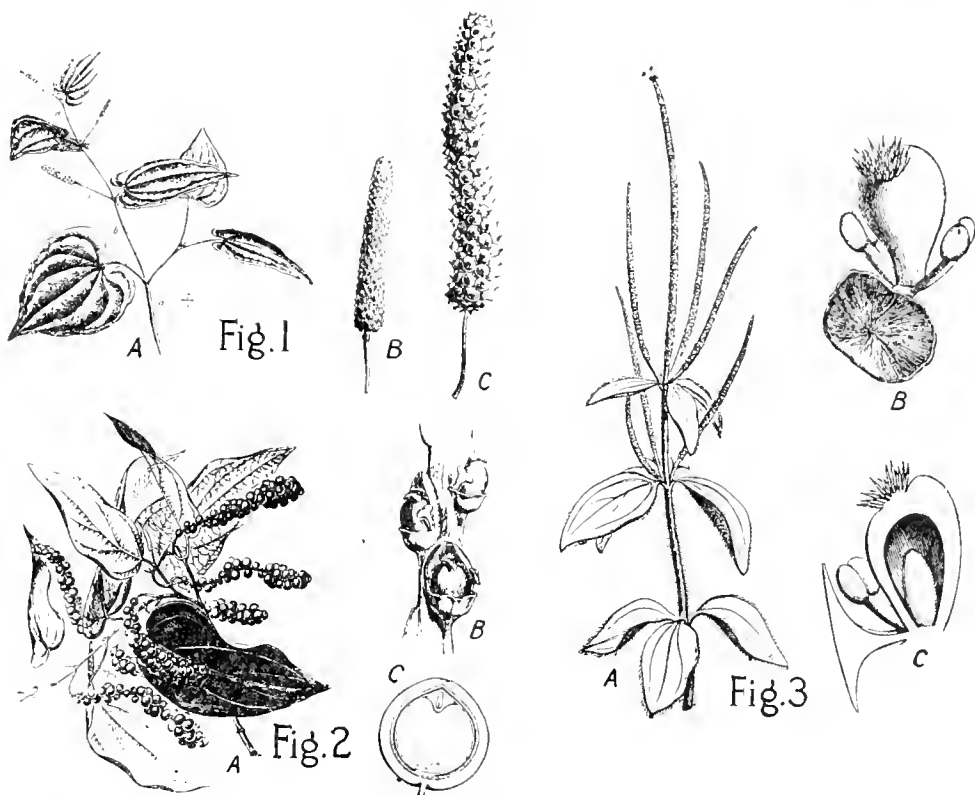
Science has taught all who are willing to learn that there are no such easy roads to reliable knowledge regarding plant properties. Judgment in this direction must depend upon accurate detailed information, studiously acquired. Nevertheless, it is possible for us, through the assembling and comparison of a great number of data, to reach certain generalizations that may be of value in cases of emergency.

It is my belief, based on many years of personal experience, that attention to the following illustrations, with their accompanying description, may be of great service to those who may find themselves separated from their base of supplies and dependent for drugs upon their utilization of the resources of the fields and forests about them.

A good illustration of my subject is found in

THE PIPERACEAE OR PEPPER FAMILY.

This small family, comprising only some eight or ten genera, even if we include the Lizard-Tail Family or *Saururaceae*, is exceedingly uniform in its aromatic



Piperaceae.—The characters of this family are so uniform that any of its members can be recognized through reference to these illustrations. Fig. 1 illustrates *Piper longum* and *P. betle*; Fig. 2, *P. nigrum*; Fig. 3, *Peperomia*.

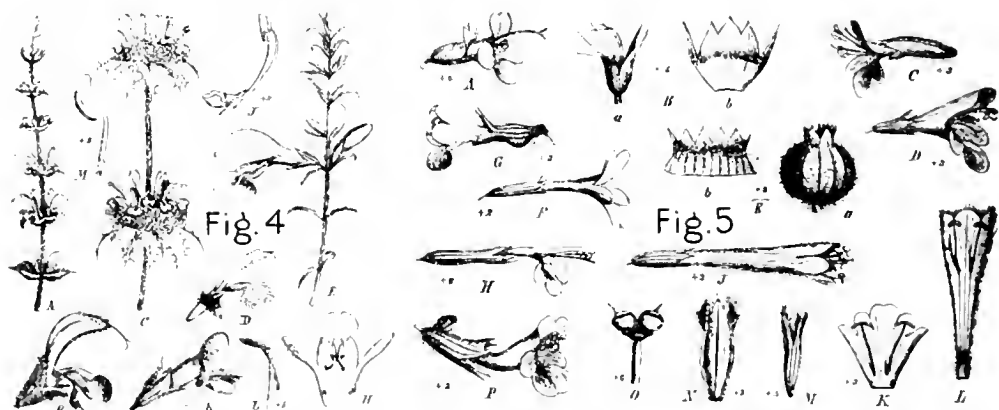
and pungent properties. We are all familiar with the properties and uses of Pepper, Cubeb and Matiao, and these are shared by something like a thousand other species of the family, which are natives of the Old and New World tropics. In the pepper genus alone there are some five or six hundred species and, so far as my experience goes, they are practically all more or less pungent and disinfectant in their nature, and highly stimulant to the natural bodily functions. I have seen a great many of them confidently used in native practice in the treatment of serious disorders, and in some cases, a number of species would be used indiscriminately. In one extensive region I found an endemic disease called *espondia*, resembling some forms of cancer in its nature, symptoms and course, and regarded as almost invariably fatal to the natives attacked by it. Two of these natives, whom I had unsuccessfully treated with sulphuric acid charcoal paste, were afterwards completely cured by their fellow Indians through the continuous application, during several days and nights, of heated leaves of a species of Piper. The attendants worked in relays, the exhausted leaves being removed and fresh, hot ones applied at intervals of a few minutes.

The characters of these plants as indicated in the accompanying picture are unmistakable.

The members of a number of families are essentially aromatic, yielding volatile oils on distillation. While there are important differences in the action of different individuals of the same family, there is at the same time sufficient uniformity to enable the physician to use them almost indiscriminately for some purposes. It is therefore of considerable importance that the family characters of the aromatic plants should be readily recognized.

THE LABIATAE OR MINT FAMILY.

The members of this family are, almost without exception, good carminatives and intestinal disinfectants, as typified in the mints, thymes, marjorams and pennyroyals. Although poisonous effects may be obtained from excessive amounts of the volatile oils, the plants themselves must be considered as non-poisonous.



Labiatae Fig. 4, species of *Salvia*, well displaying the habit of leaves and inflorescence, as well as the bilabiate calyx and corolla. Fig. 5 shows variations in form of calyx and corolla, and good illustrations of diandrous and didynamous androecia. A and B show *Thymus*, C, *Hyssopus*, D, E, G and J *Setureia*, F, *Saccocalyx*, H, K and L, *Hedroma*, M, *Pogogyne*, N, *Thymbra*, O, *Ducrandra*, P, *Melissa*.

These plants are very easily recognized by their square stems, opposite, oilbearing leaves without stipules, usually bi-labiate calyx and corolla, diandrous or didynamous androecium and 2-carpelled ovary which divides in the fruit stage into four small nutlets. Members of this family are found in nearly all parts of the world and one could, with certain safety and efficiency, employ almost any plant possessing the foregoing characters for the effects mentioned.

THE LAURACEAE OR LAUREL FAMILY.

In this family, as typified by camphor, cinnamon, coto and sassafrass, we have still more powerful intestinal stimulants and disinfectants and these properties are even more uniform throughout the family than in the Labiatae. The natives of many tropical regions rely upon one or another of them in the treatment of the most severe intestinal disorders. The extracted active principles may be more actively poisonous than those of the former family, yet the drugs themselves are equally harmless, and one may resort to the use of any of their barks, the portion usually most active, without fear of harmful results, or doubt as to their medicinal value.

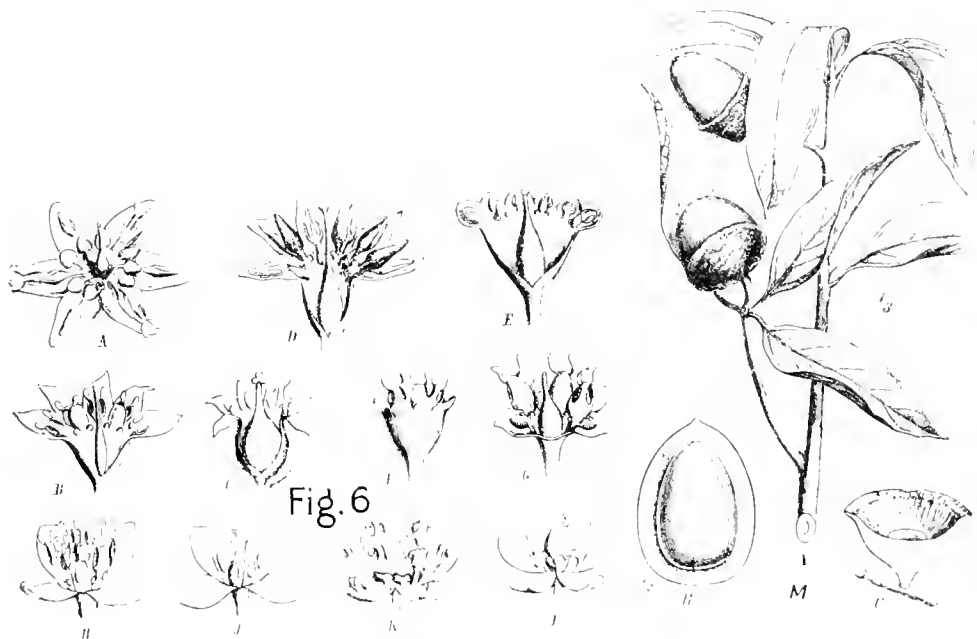


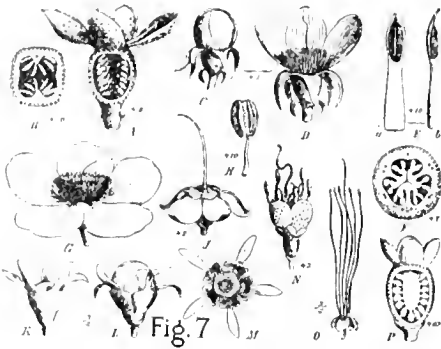
Fig. 6

Lauraceae —Fig. 6, typical flowers, showing the regular 6-parted perigone, with several sets of stamens, some of them imperfect, the 4 locellae of the anthers embedded in a large fleshy connective and the valvular dehiscence. A represents *Bailethymia*; B and C, *Ampelodesmos*; D, *Cryptocarya*; E, *Alouia*; F and G, *Aerodactylus*; H and I, *Laurus*; K and L, *Lindera*; M, the leaves and fruit of *Nectandra* well characterizing those of the family.

Lauraceous plants are rather rare in temperate and arid regions, but in most tropical forests they occupy about the same position as to abundance as do the oaks in our own forests, while the variety is vastly greater. A botanist who is familiar with the family is never at a loss to recognize one of them by their leaf-characters alone, although these characters can scarcely be described in words. By their flowers, however, as well as by their fruits, they are easily recognized. Their flowers are 3-nerous, with the ovary superior, there being two, three or four sets of stamens, one or more of the sets usually sterile, and the anthers almost always divided into four locellae, with valvular dehiscence, the upper pair of locellae smaller, and all four immersed in a fleshy, flattened connective. Whenever these characters are clearly seen, identity may be regarded as established. Nearly everyone knows the character of the Sassafras fruit, with a peculiar, more or less fleshy cup at the base. This is the fruit form that characterizes the family as a whole.

Still more easy of recognition are the third and fourth members of this group of aromatic medicinal families, namely the *Myrtaceae* and *Umbelliferae*.

THE MYRTACEAE OR MYRTLE FAMILY.



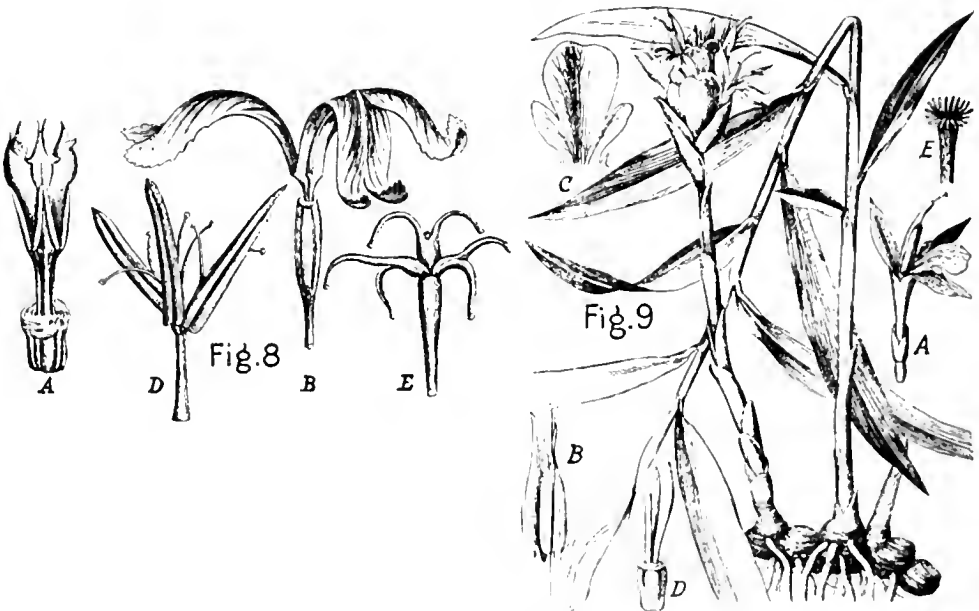
Myrtaceae—Fig 7 illustrates the opposite estipulate leaves, the 4- or 5-merous flowers, adherent calyx and numerous stamens borne on its margin. The leaves are pellucid-dotted. A to C represent *Eucalyptus*; D to H, *Pimenta*; J to M, *Mitranthes*.

The properties of this family are well and commonly made known through cloves, allspice, eucalyptus, cajuput and myrtle. Many of them are relatively weak in activity but pretty nearly all have oil-bearing leaves, and properties similar to those of the families already discussed. The plants are in practically all cases shrubs and trees. Their leaves are opposite and destitute of stipules, and bear pellucid dots indicating the oil glands. The flowers are almost without exception regular and are usually 4-merous. The ovary is inferior and the petals and numerous stamens are borne on the margin of the adherent calyx tube. Recognition is almost infallible.

THE ZINGIBERACEAE OR GINGER FAMILY.

This family of monocotyledons may be included among the useful carminatives and intestinal stimulants, and usually possesses in addition agreeable flavoring properties, as observed in ginger, turmeric, zedoary and cardamom.

Its members are free from poisonous properties as ordinarily used, so that one is quite safe in resorting to the use of one of them, if quite sure of its family. There is here, however, some danger of confusion with the related Iris family and it is necessary to be closely discriminating in selection. It is worthy of note that the ginger family is not represented in temperate regions, while plants of the Iris family, although not uncommon in the tropics, are more particularly char-



Iridaceae and Zingiberaceae—Fig 8 illustrates *Iris* with its three regular and perfect stamens. Fig 9 illustrates *Zingiber*, with only one of its anthers perfect, the others being petaloid.

acteristic of temperate and sub-tropical regions. The flowers of the ginger family are irregular and usually possess six stamens, but anywhere from one to five of these are destitute of anthers.

THE IRIDACEAE OR IRIS FAMILY.

Although this family is totally different in its physiological action and medicinal uses from the preceding, it is considered here because of a superficial similarity in the appearance of the plants of the two. This similarity need deceive no one, because the Iridaceae possess regular flowers, with only three stamens, all perfect.

The members of this family are, without exception so far as I know, strongly and usefully purgative, but they are irritant poisons, often violently so, in over doses.

THE UMBELLIFERAE OR PARSLEY FAMILY.

No family is more readily recognized than this one, notwithstanding that there are wide superficial differences. The most certain marks of identity are the umbellate flowers and fruits and the structure of the latter, consisting of two mericarps attached to a carpophore. Their alternate leaves have sheathing or clasping bases and mostly hollow petioles. These leaves are usually compound, as seen in parsley, carrot, celery and conium.

Unfortunately, we have no sure guide to the properties. The great majority of the members are innocuous, yet not a few, like conium and cicuta, are intensely poisonous. Some of the poisonous ones possess pleasant aromas, which have led to the occurrence of fatal accidents. On the whole, it can hardly be regarded as a safe procedure to employ these plants for their carminative properties, unless their individual identity and innocence have been established.

THE CONVULVULACEAE OR MORNING GLORY FAMILY.

Reference should be made, in passing, to the properties of the plants of this well-known family. They are quite uniformly purgative, usually in all parts of the plants. The sweet potato and several others are peculiar exceptions.

THE MAGNOLIACEAE OR MAGNOLIA FAMILY.

This is another aromatic family, but one which combines bitter qualities with the aroma and whose plants, almost without exception, are excellently useful as aromatic bitters and stomachics and, properly used, valuable antiscorbutics. In their physiological and medicinal properties, as seen in *Magnolia*, *Liriodendron* and *Drimys* barks, they are closer to the Laurel family than to any of the others previously discussed. One is quite safe in resorting to the use of these barks and very certain to secure the aromatic bitter effects referred to.

The family consists of shrubs or trees, with alternate, simple and mostly entire leaves, with or without stipules and aromatic in all their parts. They have numerous distinct stamens and distinct sepals and petals, and their numerous pistils are either distinct or immersed in an elongated fleshy torus.

THE ARISTOLOCHIACEAE OR SNAKE-ROOT FAMILY.

Passing reference may be made to this interesting and uniformly aromatic-bitter family, the members of which cannot be mistaken, if one sees either their flowers or their fruit. The experienced botanist will identify them with equal readiness upon merely seeing a leafy stem. Their use must be resorted to with caution, because some of them are rather strongly irritant poisonous.

THE RUTACEAE OR RUE FAMILY.

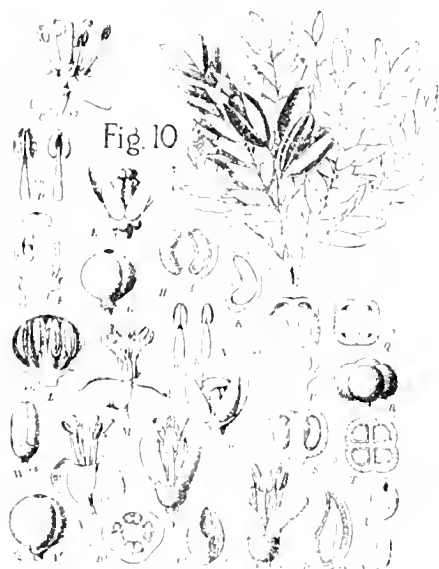


Fig. 11

Rutaceae. Fig. 10, *Chloroxylon*, well illustrates the habits of these plants, with their pinnate leaves, though often having only three or even a single leaflet, while Fig. 11 we'll illustrate the flower-forms which, although greatly varied, always present the same basic characters. The same forms characterize the *Simarubaceae*, except that its carpels are 1-ovuled.

This is another family which combines aromatic and bitter properties and which is in nearly all cases medicinal. Unfortunately its recognition is of but little practical value, partly because the medicinal properties are widely diversified, with no external indications of their nature, and partly because the plants are in most cases more or less poisonous, while in others little or not at all so.

The leaves are alternate and estipulate and usually compound. When held against the light they show pellucid dots, as is so well known in rue, buchu, jaborandi and orange leaves. The flowers are 4- or 5-merous and the carpels are separate or united only at the base or, at the most, so united as to result in a lobed fruit. The cells of the ovary are almost invariably 2-ovuled.

A number of families are uniform in their possession of bitter properties, without any considerable associated aroma, and are commonly used as simple bitters.

In this connection, the following may be noted:

THE SIMARUBACEAE OR QUASSIA FAMILY.

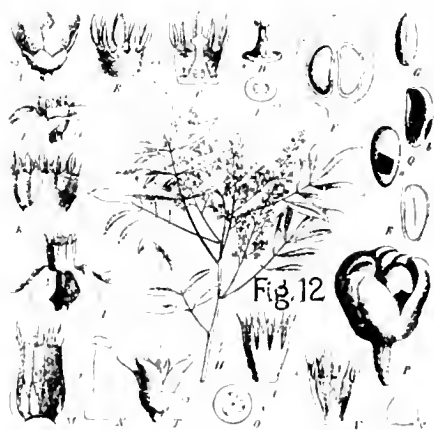
Although quassin and some other principles extracted from the plants of this family are poisonous, the plants themselves are scarcely so, notwithstanding that there are records of mild poisoning, in the form of chronic gastritis, resulting from their continuous use, as from drinking water permeated by extracted matters from the *Ailanthus*. Almost without exception, these plants may be usefully employed as simple bitters.

They are very easy of recognition, possessing all the characters of the *Rutaceae*, except that there is but one ovule in each carpel and the leaves have no pellucid dots.

THE MELIACEAE OR AZEDARACH FAMILY.

In connection with the *Rutaceae* and *Simarubaceae*, brief reference should be made to the *Azedarach* family. Nearly all of its plants possess nauseating expectorant or even emetic properties similar to those of ipecac, as seen in *Azedarach* and *Cocillana* barks, and in *Narcgamia*.

The plants have a very similar habit to that of the *Simarubaceae*, having alternate compound leaves without pellucid dots. The general flower-structure



Meliaceae. The habit of these plants is much the same as that of the *Rutaceae* and *Simarubaceae*, but the filaments form a cup, with the anthers at its margin.

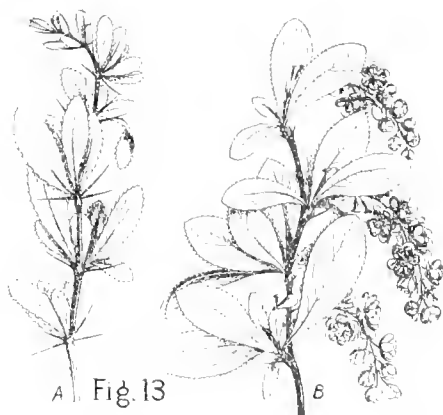
is similar, but the filaments form a cup, with the anthers borne at or near its summit.

BERBERIS AND ITS ALLIES.

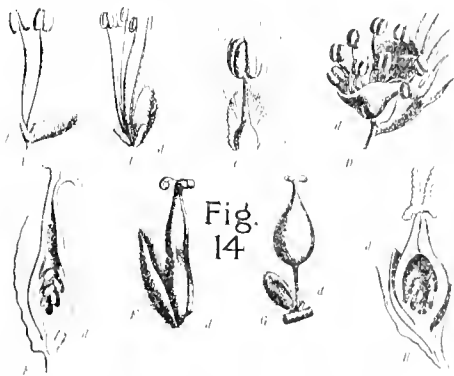
The properties of this entire group are typified in those of the species of *Berberis* which have been employed so generally in medicine, and are due to the constituent berberine. There is not the slightest difficulty in recognizing them on the part of one who has become familiar with any species of the genus.

THE SALICACEAE OR WILLOW FAMILY.

This remarkably uniform and important family may well be included among those distinguished for bitterness, although, in addition, it has highly important anti-rheumatic and anti-periodic properties, due to itsalicin and populin, and astringent properties due to its rather large percentage of tannin. These properties are shared by every member of the family, so far as known.



Berberis vulgaris; the members of this genus present so similar an appearance that familiarity with one will lead to the recognition of all.

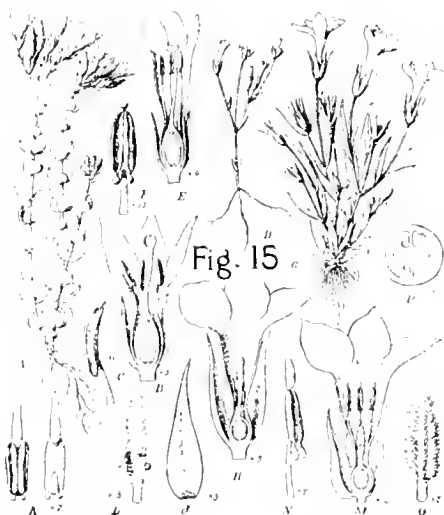


Salicaceae.—A, B, C, E, F and G illustrate the flowers, with their entire scale, of *Salix*. D and H show those of *Populus*, the scale being limbate.

their branches, often only an inch or two in length.

THE GENTIANACEAE OR GENTIAN FAMILY.

This family perhaps surpasses all others in the vegetable kingdom in the uniformity of its medicinal properties, as typified in *Gentian*, *Chirata*, *Erythraea*, *Sabbatia* and *Menyanthes*. Although these properties are of the simplest possible nature, those of the simple bitters, promoting the appetite and digestion and generally exciting healthy functional activities, they are of much importance in both scientific and domestic medicine. Inasmuch as these plants are most widely distributed through both sub-tropical and temperate regions, so that one can scarcely fail to find one or more of them in almost any region where he may be, and since such plants are almost invariably uniform in the possession of this property, and are equally uniform in being free from toxicity, it becomes of the greatest value to be able to recognize their family relationship at sight. I do not remember to have



Gentianaceae.—Here we see the same opposite leaves without stipules, and the tubular corollas with adherent stamens which characterize the other families of the order *Gentianales*, but here we have a one-celled though two-carpelled pistil. A to C represent *Sebaea*; D to F, *Lagenaria*; G to P, *Belmontia*.

or less toxic, but in the ordinary sense of the term, the plants are not poisonous. They are, however, highly medicinal. The number which are effectively employed in native and domestic practice and which are practically unknown in professional medicine, is large. Were all other vegetable drugs to be lost and the world forced to depend upon this family, the variety and value of its drugs would undoubtedly cause surprise in scientific circles. It is not too much to say that recognition of a plant as belonging to this family justifies a presumption of its medicinal activity. Unfortunately, we cannot so judge of the nature of those activities, since they are of a very diverse character.

No other family of plants is more easy of recognition. Its adherent calyx and tubular corolla are shared by a number of others, but a glance at its opposite leaves with stipules suffices for identification. These stipules constitute one of the great features of interest in the family, forming its chief field of variation and specialization, and the classification of its genera can be based largely upon them.

The only families, the distinction of whose members from those of the *Rubiaceae* is difficult, and this only on superficial observation, are the *Verbenaceae* and *Apocynaceae*, both of which possess opposite leaves, often closely resembling those of the *Rubiaceae*, but never having stipules.

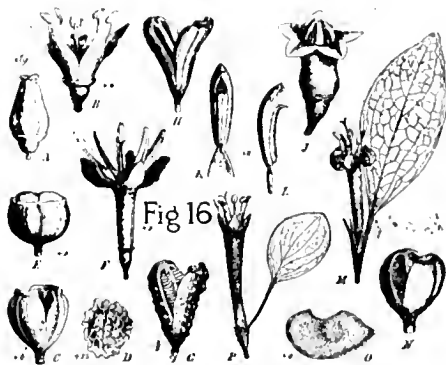
The plants of the *Verbenaceae* are non poisonous, so that a mistake would

ever visited any such region where I could not have supplied myself with a good simple bitter derived from this family, had the necessity arisen.

These plants have opposite 'stipulate leaves, tubular corollas and adherent stamens, as do those of the other families of this order, the *Gentianales*, several of which are to be considered later. The ovary, however, is always one-celled, and the placentae are parietal. They are devoid of milky juice and have a bitter taste. There is, moreover, no stigmatic ring, as in the *Apocynaceae*.

THE RUBIACEAE OR MADDER FAMILY.

This great family, of nearly four hundred genera, and five thousand species, rich in dyestuffs, may be regarded as pre-eminent in the vegetable kingdom in the production of alkaloids, its only rival in this direction being the poppy family. Unlike the latter, it is almost free from poisonous properties. It is true that such drugs as cinchona, coffee and ipecac contain principles more



Rubiaceae.—Fig. 16 illustrates the flowers and fruits. The calyx is completely adherent to the ovary, the corollas are tubular and the filaments are adherent to it. The fruits are dicarpellary. A to L, *Chimarrhis*; F and G, *Rustia*; H, *Condaminea*; J to L, *Tresanthera*, M to O, *Pinckneya*; P, *Pogonopus*.

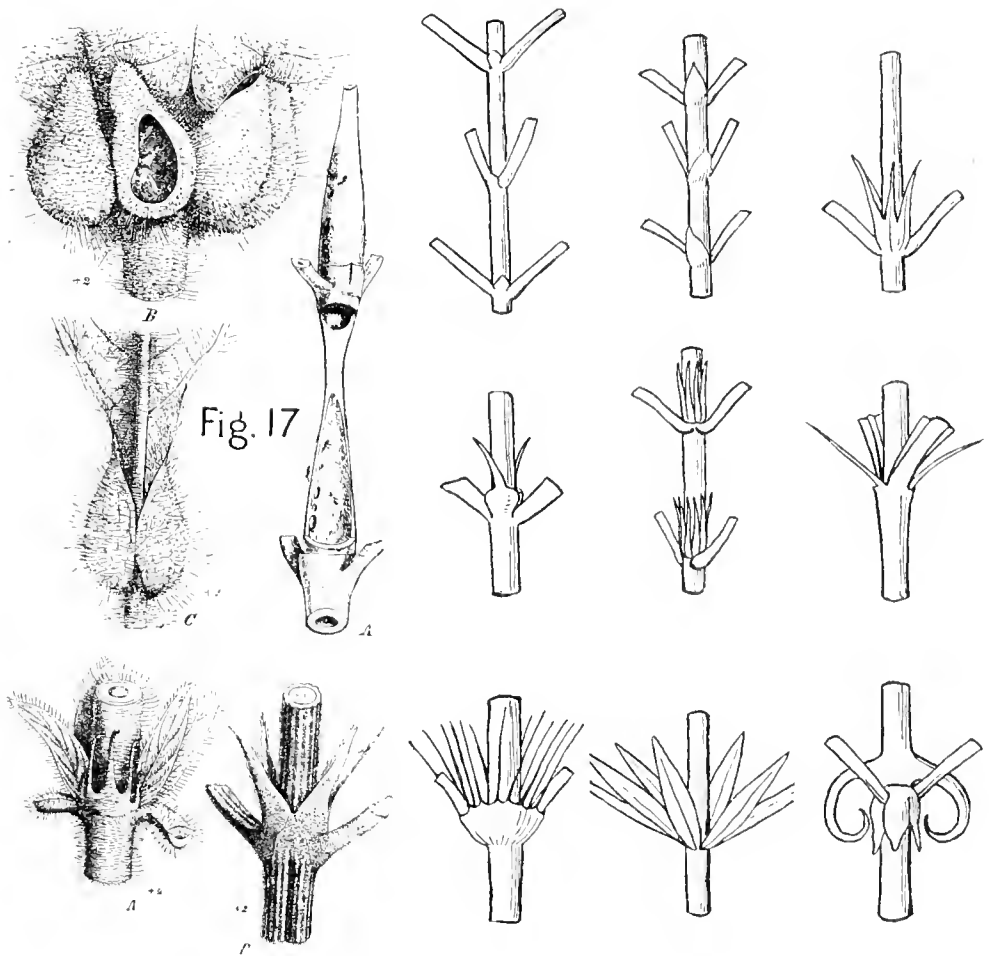


Fig. 17 illustrates a variety of stipules pertaining to the family Rubiaceae.

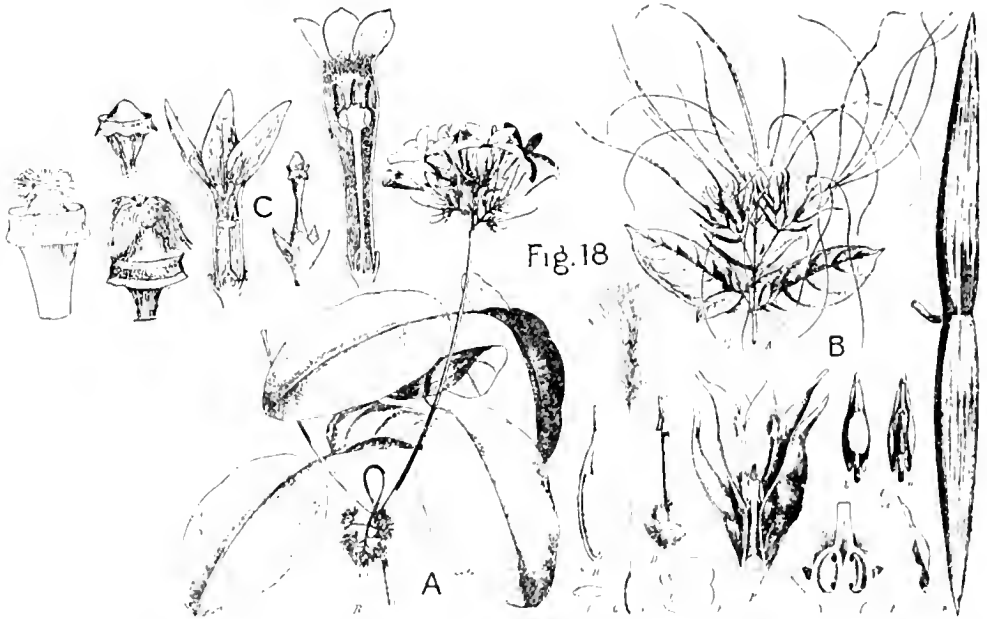
not be serious. Their medicinal importance is slight, merely because they have been little used in scientific medicine. They are by no means devoid of medicinal properties, even the humble vervain being entitled to a distinct position in the materia medica.

THE APOCYNACEAE OR DOGBANE FAMILY.

Hardly any other family of plants is of greater interest in my discussion than this one, from the standpoint of medicine as well as of toxicology. With the poisonous properties of *Strophanthus*, *Apocynum*, *Holarrhena*, *Kicksia*, *Oleander* and *Geissospermum* most of us are familiar, but those of *Landolphia*, *Allamanda*, *Plumiera*, *Vinca*, *Rauwolfia*, *Voucanga*, *Malouetia* and *Echites*, as well as the arrow poisons *Carissa*, *Akokanthera*, *Cerbera*, *Thevetia* and *Wrightia*, are not so generally known.

With few exceptions, the other members of the family, which are very numerous, share in these poisonous properties. These plants are exceedingly abundant and generally distributed throughout the tropical forests of both the Old and New World, so that it becomes a matter of first importance that one thrown upon his own resources should be able to recognize them at sight. This is no less important from the medical point of view, since they are with equal regularity

medicinally active as circulatory stimulants. It would be a somewhat difficult matter to find any extensive locality in the South American forests where one would be unable to find, within an hour's search, some member of this family which he could safely and effectively employ in this way.



Apocynaceae Stigma.—A illustrates *Landolphia*, showing the general habit, opposite estipulate leaves and tubular flowers. B illustrates *Strophanthus*, showing the tubular corolla, with adherent stamens, the anthers adhering to the stigmatic ring. C illustrates various forms of the stigmatic ring.

Aside from other characters, the members of this family are distinguished from all others by the character of the pistil. While its two ovaries are separate, and form separate fruits, its styles above the ovaries are united and possess near the summit a peculiar ring or band surrounding the style just below the stigma, to which the anthers are attached. This character, taken in connection with the opposite, estipulate leaves, milky juice and tubular flowers, renders recognition instantaneous and infallible.

Through gross carelessness, one might mistake a member of the closely related milkweed family, *Asclepiadaceae*, for this one. It also has opposite estipulate leaves, a milky juice and tubular flowers. There are peculiarities in the leaf-characters which will enable experienced botanists to tell the one from the other, although the method of doing so could not be characterized in words. The flowers, however, are quite different, being devoid of the united styles with stigmatic ring and having the pollen grains coherent in pollinia or pollinaria.

This family is destitute of the heart-stimulant properties of the *Apocynaceae* and their medicinal value is not great.



Verbena.—A shows the opposite estipulate leaves and tubular flower, as in *Apocynaceae*, but there is no similarity whatever in the pistil.

THE LOGANIACEÆ OR NUX VOMICA FAMILY.

Closely related to the *Apocynaceæ* stands the pre-eminently poisonous family, *Loganiaceæ*, known in medicine by *Gelsemium*, *Strychnos* and *Spigelia*. The plants of the two families bear a striking superficial resemblance, but those of the *Loganiaceæ* have no milky juice and possess a single two-celled ovary instead of the two distinct ovaries of the *Apocynaceæ*, and are wanting in the stigmatic ring. This is a small family and its plants are almost uniformly violently poisonous. On various occasions, on encountering unknown members of this family in the tropics, I have inquired of the natives as to their properties and have never yet failed, if the natives possessed any knowledge concerning them, to be informed that they were poisonous. Aside from its important uses in medicine, this family yields largely of materials used in arrow poisons. *Potalia* is much like *Strychnos* in its action. In Mexico and in the South American Andes, I have found many species of *Buddleia* credited with dangerously poisonous properties. It is unfortunate that, although these plants are almost always medicinal, we are unable to generalize as to the nature of the medicinal properties.

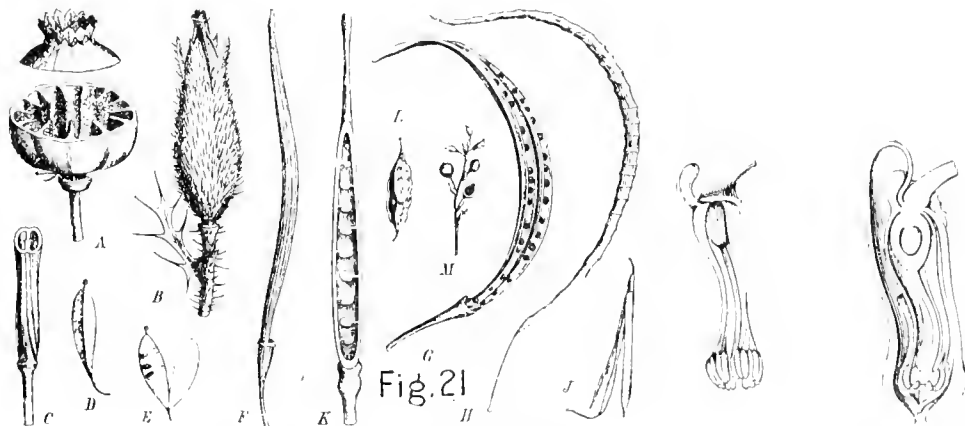


Loganiaceæ—*Gelsemium* well displays the opposite stipulate leaves and tubular corollas, with adherent stamens, as in *Apocynaceæ*, but there is a single ovary and there is no stigmatic ring.

THE PAPAVERACEÆ OR POPPY FAMILY.

The members of this family are almost invariably alkaloidal in their composition and their alkaloids, in most cases, agree in being locally irritant and systemically narcotic, and more or less strongly poisonous. Practically every one which has been physiologically investigated has been found active, and most of them medicinally useful. Unfortunately, these medicinal properties are not sufficiently uniform to allow of generalization, but it may be said that any member of the family is worthy of chemical and medical investigation.

To one not familiar with the genera of this family, the fruit characters offer the best means of recognition. These fruits are for the most part similar to those



Papaveraceæ.—Illustrates the fruits: A, that of the Poppy, is an exception; B, *Argemone*; C, *Glaucium*; D and E, *Macleaya*; F and G, *Eschscholtzia*; H, *Hypericum*; J and K, *Corydalis*; L, *Adlumia*; M, *Fumaria*. The blood-root pod is similar to that of *Eschscholtzia*. The two pictures at the right show the spurred flowers of the *Adlumia* branch of the family.

of the bloodroot. One of my most interesting experiences in field work was in connection with a member of this family, a species of *Bocconia*. Riding my mule along a mountain trail, a pendant cluster of fruits brushed across my face. Instantly, by force of habit, I caught at it and secured a specimen. On examining it, I was struck by its close similarity to that of our common bloodroot. Dismounting, I turned back and found that it was borne upon a small tree, the bark of which exuded a thick, blood-red juice when punctured. A quantity of the bark was collected and at my first stopping place was tested. It presented undoubted evidence of containing several alkaloids. Inquiring among natives of the neighboring village, I was informed that the leaves yielded an important domestic medicine, and that its name was "Hamakari." Among the other curious things which were told me was that infants dangerously ill with fever were wrapped in the large poppy-like leaves, after strongly heating the latter at the fire. If the leaves turned black after being for some time against the skin of the infant, the indications were favorable; otherwise a fatal result might be expected. I presume that this conclusion rested upon the fact that if the infant perspired, the perspiration would cause color reactions, turning the leaves black.



Ranunculaceae Fig. 22 illustrates *Hydrastis*, with all parts of the flower free and distinct

THE RANUNCULACEAE OR BUTTERCUP FAMILY.

The members of this family almost invariably contain juices which act as local irritants, and this property is in many cases found to reside in specific chemical principles such as we find in *Aconite*, *Larkspur* and *Hydrastis*. As irritants alone, these plants possess little medicinal value, but it so happens that they are also almost uniformly circulatory depressants. In *Adonis* and one or two others, we find exceptions to the rule, but the latter is sufficiently uniform to enable one thrown upon his own responsibility to rely with considerable confidence upon obtaining results in this direction by the use of a member of this family, even though he had no specific knowledge concerning it.

The family is easily recognized by its alternate, usually lobed or divided leaves, without stipules, but having the base considerably dilated. Its flowers are free and distinct in all of their parts, except for the rarely and partially coherent carpels.

THE LILIACEAE OF LILY FAMILY.

The properties of this family, as is true of the *Ranunculaceae*, are not absolutely uniform, yet they may be regarded as almost the exact counterpart of those of the latter, its members, as seen in *Squill*, *Lily-of-the-valley*, *Garlic*, etc. being almost always circulatory stimulants and powerful promoters of glandular activity.

THE LOBELIACEAE OR LOBELIA FAMILY.

In discussing this family, I desire to state that I wholly exclude from it the closely related family *Campanulaceae*, notwithstanding that many botanical authorities believe in uniting the two.

The *Lobeliaceae*, so far as known, are all powerfully poisonous, their properties being typified in our *Lobelia inflata*. For this reason it is important that they be

recognizable at sight. As poisons, they are intensely irritant and decidedly narcotic. *Isotoma longiflora*, of Cuba and other West Indian islands, has been declared by one distinguished medical botanist to be the most poisonous of all plants. Doubtless this view is incorrect, since I have known the same thing to be said in other tropical regions of various species of *Siphocampylus* and *Centropogon*, their juices so irritant that they are frequently spoken of as being "caustic." There is record of one member of this family being non-poisonous, it being claimed that the New Zealand *Laurentia* is eaten as a pot-herb. I have little doubt that there is some error connected with this report. I should expect to be poisoned were I to eat this plant.

Aside from its toxicological interest, this family, carefully used, is capable of great medicinal utility, the properties being uniformly those of our *Lobelia inflata*.

The more powerfully poisonous division of this family is distinguished by its ascending or centripetal inflorescence, irregular corolla, almost always fissured on the upper or inner side, and its anthers, usually also its filaments, being connate and irregular. Its calyx tube is always adnate. Recognition is easy and certain.

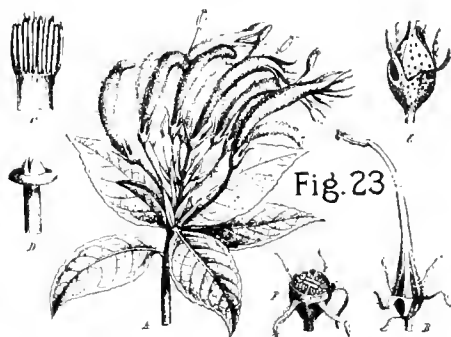
THE LEGUMINOSAE OR BEAN FAMILY.

In this instance, I include all three of the sub-families, now regarded by most botanists, myself included, as being separate families. It is quite useless to attempt to generalize as to the medicinal or poisonous properties of so diversified a group. My only object in referring to them here is to indicate their dangerous character. To those who know only the few and mostly small plants growing wild in our region, the most of them so harmless as to constitute important fodder plants, this statement may seem unwarranted, but those who know of the vast extent and abundance of this family in the tropics, where they largely compose the forest growth, will know that the statement is not an exaggerated one. The seeds of this family, and in many cases the seed-pods and foliage also, are highly albuminous and nutritive and may in emergencies be sought as food, as I have myself sought them and with great advantage. The difficulty is that, as in the case of the calabar bean, the wild lima bean and the locoweed, they often contain subtle and dangerous poisons. It must thus be regarded as an unsafe proceeding to resort to the use of any of them without some specific knowledge of their properties.

These plants are most easily recognized. Like the *Rosaceae*, they have alternate, stipulate leaves, five petals and perignous stamens. They differ from it in having but a single carpel, usually with more than two ovules, but sometimes with only one. Their leaves are usually compound. The botanist who has become at all familiar with the family however, invariably recognizes it at sight without requiring recourse to technical characters.

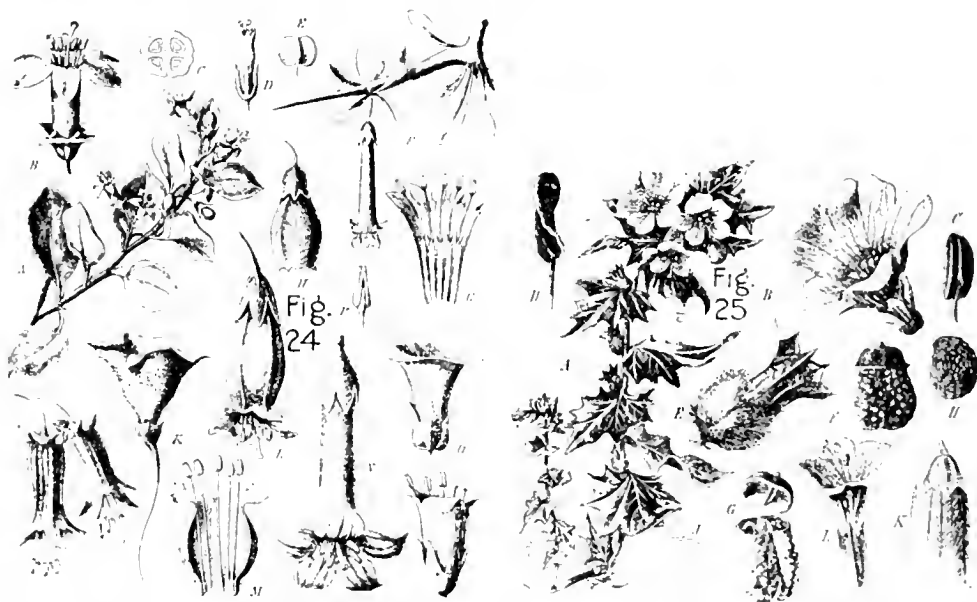
THE SOLANACEAE OR POTATO FAMILY.

Although widely separated in the vegetable kingdom from the family last considered, the two remind us in many ways of one another. Like the *Leguminosae*, the *Solanaceae* are permeated by many subtle and highly dangerous poisons, although their chemical nature is altogether different. Like the *Legu-*



Lobeliaceae.—Illustrates *Siphocampylus*, which is very similar to *Lobelia*. The corolla is fissured and through the fissure projects the coherent anthers which are well shown in B and C. E shows the calyx-tube adherent to the ovary. D shows the two stigmas and F, a cross section of the pod

minosae, the *Solanaceae* yields many important edible products and, like it, its vegetable products are quite likely to attract the traveler who is in need of food supplies. To yield to this temptation is to court disaster, as one has never any means of knowing how the experiment is likely to terminate. Even the odor and



Solanaceae. This important family is so large and variable as to require a number of illustrations. Fig. 24 shows the characteristic flower forms, with tubular corollas, 5 alternate stamens and 2 carpelled ovary, producing a berry for a fruit. A to C *Grabowskia*; D and E, *Oryctes*; F and G, *Danalia*; H, *Margaranthus*; J, *Hebecladus*; K, *Poecilochroma*; L and M, *Litsea*. N *Lochroma*; O and P, *Cocabus*; Q *Phrodus*. Fig. 25 illustrates the capsular-fruited division of the family, as seen in A to J, *Hyoscyamus*; K *Scopolia*; L *Physalis*.

flavor are often misleading guides, these agreeable properties sometimes being associated with highly dangerous ones.

The members of the Potato Family, so far as we are here interested in them, have regular gamopetalous corollas, stamens alternate with its lobes, alternate estipulate leaves, two-celled fruits and the carpels containing numerous ovules. The corolla is plicate in aestivation and the fruit either a berry or a capsule.

THE ROSACEAE OR ROSE FAMILY.

In connection with the astringent properties of the willow family, one may well refer to those of the rose family, the members of which are almost without exception heavily provided with tannin. I refer here of course, to the Rose Family proper, not including the *Drupaceae* or Plum Family, nor the *Pomeaceae* or Apple Family. Through the Raspberry, Blackberry, Strawberry, Potentilla, Agrimonia, Spirea and many others, scientific and domestic medicine has for ages been furnished with an abundance of simple astringents of great efficacy. Since the related genera, with similar properties, are very numerous and most widely distributed, it becomes a matter of no little importance to be able to recognize the members of this group at sight. This is to be done by noting their stipulate leaves, usually compound, as seen in roses, blackberries, strawberries, etc., their five regular petals, numerous perigynous stamens, two-ovuled, mostly distinct carpels and style arising laterally from the ovary.

Only a word need be said in conclusion regarding the several families grouped under the old name *Coniferae*. Everyone is able to recognize any member of this group at sight and their medicinal and poisonous properties are too well known to call for any discussion.

BRAZILIAN JALAP.*

BY WILBUR L. SCOVILLE.

In 1915 a brief article was published in the *Pharmaceutical Journal*¹ of London by E. W. Holmes stating that Brazilian jalap had been for some time imported into Germany and used as a cheap source of resin of jalap. He had therefore procured some of the drug, which was identified as the root of *Piptostegia pisonis* and was examined chemically by Dr. F. W. Passmore. The latter found that the root contained over 20 percent of resin which answered to the U. S. P. & Ph. Br. tests for true resin of jalap, but only 85 percent of it was soluble in ether, and it contained 8.9 percent of ash.

A search of pharmaceutical and chemical literature has failed to disclose any further account of this drug or its chemical composition. Accordingly a small amount was procured from Brazil and examined as follows:

Forty grammes of the ground drug was exhausted with 95 percent alcohol in a Soxhlet apparatus and the tincture diluted to 200 mls. This tincture yielded 7.04 percent of dry solids equivalent to 35.2 percent of extractive in the drug, and on subjecting it to the U. S. P. method of assay for resin of jalap, gave 5.64 percent of resin in the tincture, equivalent to 28.2 percent in the drug. The resin was a light buff color, slightly hygroscopic, and it melted under boiling water.

Five hundred grammes of the drug was then extracted with alcohol, the tincture was concentrated by distillation to a syrupy liquid measuring about 180 mls and this was poured slowly into about 7500 mls of cold water containing a little hydrochloric acid. The resin precipitated at first in a fine powder but quickly agglomerated into a sticky mass at the bottom of the jar. It was washed several times with water, then collected and dried, yielding 132.5 Gm. of resin, equivalent to a 26.5 percent yield from the drug.

Portions of this resin were shaken with petroleum benzine, benzol, ether, chloroform, and acetone, and the clear liquids evaporated. By this method it was found that 3.7 percent was soluble in petroleum benzine, 5.3 percent in benzol, 5.9 percent in ether, 19.55 percent in chloroform, and 99.4 percent in acetone. It was nearly all soluble (97.5 percent) in a 1 percent solution of potassium hydroxide, and the addition of acid to this alkaline solution did not reprecipitate the resin.

On shaking 1 Gm. of the resin, mixed with 5 Gm. of washed sand, with 100 mls of distilled water for several hours at room temperature, and filtering, 0.535 Gm. was found to be dissolved by the water. This is a remarkable solubility for a resinous body, and probably accounts for the fact that it could not be precipitated as a powder, even in ice-cold water, but always separated as a soft, sticky mass. On ignition the residue yielded 0.5 percent of ash—considerably less than was obtained by Doctor Passmore.

The acid number, as obtained by the U. S. P. process, was 23.1 and the saponification number was found to be 141.6. An alcoholic solution of the resin gave no color with a solution of ferric chloride and did not reduce Fehling's solution. But on heating the alcoholic solution with sulphuric acid a strong odor of valeric acid appeared and the neutralized liquid reduced Fehling's solution, showing that the resin is of a glucosidal nature.

Two grammes of the resin dissolved slowly in 10 mls of ammonia water, producing a cloudy but limpid solution, and the addition of an excess of hydrochloric acid did not precipitate the resin.

Since the U. S. Pharmacopœia requires that not more than 12 percent of the resin of jalap shall be soluble in ether, and not more than 30 percent soluble in chloroform, this resin of Brazilian jalap will meet the U. S. P. requirements except as to solubility in water and the acid-resin test, which it slightly exceeds. Even

* Read before Scientific Section, A. Ph. A., Chicago meeting, 1918.

¹ *Pharm. Journal*, 1915, page 671.

the water-solubility test is greatly changed by the presence of a little acid, and the addition of acid to the clear aqueous solution produces a marked precipitate. Probably the temperature also affects the solubility markedly, since hot water dissolves it more readily. To further ascertain its character 100 Gm. of the resin was treated successively by percolation with petroleum ether, ether, chloroform and acetic ether.

The petroleum ether extract yielded 2.09 Gm., and was a reddish, oily, viscid liquid, mostly soluble in alcohol and having a markedly acid reaction. Its acid number was 12.9 and the saponification number 116.

The ether solution yielded 2.376 Gm., was solid and of a buff color, resembling the original resin, had an acid number of 82.6 and a saponification number of 62.5.

The chloroform solution yielded 2.424 Gm., was solid, crystalline and showed an acid number of 10.1 and a saponification number of 58.5.

Acetic ether dissolved all of the remainder of the resin, and this portion gave an acid number of 16.8 and a saponification number of 161.3.

All these extracts therefore contained free acids, the ether solution being richest in them, and also fatty esters.

Comparing these with an investigation of resin of jalap by Frederick B. Power and Harold Rogerson (International Congress of Applied Chemistry, 1909), an investigation which was very complete, and which established the very complex character of resin of jalap, they found the following:

| | |
|--------------------------------------|--------------|
| Soluble in petroleum ether | 1.9 percent |
| Soluble in ether | 9.7 percent |
| Soluble in chloroform | 24.1 percent |
| Soluble in ethyl acetate | 22.0 percent |
| Soluble in alcohol | 38.8 percent |

The above were obtained by successive treatments, and represent the percentages which were dissolved after the preceding solvent had been employed.

Solubility results are not directly comparable unless obtained under identical conditions and with the same amounts of solvents. Presumably the above solubilities were obtained by extracting the resin, previously mixed with purified sawdust, in a Soxhlet apparatus, using the solvents successively. This would result in a thorough extraction of all substances which are soluble in the particular solvent used. In my work the powdered resin was simply shaken for several hours with about four times its volume of the solvent, the latter decanted, and the resin rinsed with fresh portions of solvent. In this method only the more readily soluble constituents would be extracted.

It is evident, however, that the Brazilian resin is less soluble in ether and much more soluble in ethyl acetate.

On analysis of the various fractions of the resin, Power and Rogerson found formic, acetic, butyric, valeric and other higher volatile acids, also palmitic, stearic and convolvulic acids, and by hydrolysis azelaic and sebacic acids, and a new acid which they had previously found in the root of *Ipomoea purpurea*, and which they called ipurolic acid.

The neutral bodies found were cetyl and ipurganol alcohols, a physosterol, beta-methylaesculetin and glucose, the latter showing the glucosidal nature of the resin.

I did not attempt so complete a separation of the constituents of Brazilian jalap resin, but formic and valeric acids were recognized by their odor and the

former was identified by chemical tests, glucose was produced by hydrolysis with sulphuric acid and the ready saponification of some of the fractions strongly suggested stearic or similar acids. If ipurolic acid could be separated and identified, the chemical similarity of the two resins would be established.

In their work on *Ipomoea purpurea* Power and Rogerson separated this acid as follows:

The resin was hydrolyzed by heating in alcoholic solution, containing enough sulphuric acid to make a 5 percent acid solution, for four hours under a reflux condenser. The alcohol was then removed, and the hydrolyzed resin distilled with steam. When the liquid in the still had cooled, the acid separated in fine, interlaced crystals from the aqueous fluid and was collected by filtration. It was found to be readily soluble in a weak solution of sodium hydroxide, and after rendering this acid with acetic acid the crystalline body was extracted with chloroform. To further purify it, it was again crystallized from hot water, in which it is slightly soluble. The melting point was then found to be 161° C.

On applying this process to the resin of Brazilian jalap, an acid body separated in the still and was purified by dissolving in weak sodium hydroxide solution and extracting with chloroform after acidulating. On recrystallizing from hot water it was obtained in colorless condition and had a melting point of 83.5° C. Further purification showed no change in the melting point.

It combined readily with weak alkalis, and had a saponification value of 174, as found by direct titration in alcoholic solution with decinormal alcoholic potassium hydroxide. This is a lower saponification number as well as a lower melting point than that of ipurolic acid. It is therefore a different body, but it is obtained in the same way, and does not correspond to any of the commonly known organic acids.

The resin of Brazilian jalap is thus shown to be similar in chemical character to that of *Exogonium Purga*. It is a complex body of a glucosidal nature, and contains constituents of like character. This resin meets the U. S. P. requirements for resin of jalap except that of solubility in water and the acid number. The yield is three to four times as great, and the physiological action is similar.

LABORATORY OF PARKE, DAVIS & CO.,
DETROIT, MICH.

KARAYA GUM, A SUBSTITUTE FOR TRAGACANTH.*

BY CLARE OLIN EWING.

The commercial value of a gum depends largely upon the purpose for which it is best suited, the most valuable generally being those varieties suitable for sizing silks and for use in confectionery and pharmacy. For pharmaceutical use the desirable qualities are a fairly high viscosity, suitable adhesive power, and freedom from appreciable odor, color and acidity. One of the gums which admirably fulfills these requirements is gum tragacanth, which is highly prized by pharmacists and is official in most pharmacopoeias. It is defined by the United States Pharmacopoeia IX (1916) as "The spontaneously dried gummy exudation from the stems of *Astragalus gummifer* Labillardiere, or from other Asiatic species of *Astragalus* (fam. *Leguminosae*.)" Gum tragacanth belongs to the class of gums

* Contribution from the Pharmacognosy Laboratory, Bureau of Chemistry, Department of Agriculture, Washington, D. C.

which swell in water and form jellies, and upon addition of more water, form thick, transparent mucilages.

Recent examination of samples of gum tragacanth offered for importation has disclosed that in some instances foreign gums have been substituted for the true material. The samples in question were not obtained from the official source, but were of the type obtained chiefly from *Sterculia urens* Roxburgh, and also from *Sterculia villosa* Roxb., *Sterculia tragacantha* Lindley, or from *Cochlospermum gossypium* DeCandolle, and other species of *Sterculia* or *Cochlospermum*. These gums have recently been imported under the names of Indian, Karaya, Kadaya and Maura gum. Owing to the large number of dialects spoken in India, they have been known by a wide variety of vernacular names. According to Dymock¹ and to an anonymous writer in the *Scientific American*² they have also been variously known by the names Bali, Gulu, Kahu, Kalru, Kadu, Kandul, Karai, Katila, Katira, Kavali, Kawali, Kutera, Kuteera, Kutira, Loli, Pandruk, Penari, Shiraz, Tabsu, and Velley-putali. The names most common in this country are Indian gum and Karaya gum. We consider the latter name preferable to Indian gum, especially in view of the fact that the term "Indian Gum" has been applied to a number of different gums. The Indian gum (*Gummi indicum*) of the British Pharmacopoeia is obtained from *Anogeissus latifolia* Wallroth, and belongs to the acacia series of gums.

Karaya gum belongs to the tragacanth series of gums, and in the powdered state may readily be mistaken for true gum tragacanth. It is reported to exude from the trunk in large quantities. In the whole state it occurs in irregular, rounded, translucent lumps of a pale buff color; it is said never to occur in the ribbon-like whitish or light brown bands characteristic of true tragacanth. It may be differentiated from tragacanth chemically and macroscopically by a number of tests given in the United States Pharmacopoeia IX,³ where it is referred to as "Indian Gum" in the tests of purity of gum tragacanth, and also by its "volatile acidity"⁴ which is about eight to ten times as great as that of tragacanth.

Although, according to Guibourt⁵ the fresh gum is inodorous, when it is exposed to moist air it gives off an odor of acetic acid. Robinson⁶ has shown that the volatile acidity of gum from *Cochlospermum gossypium*, when hydrolyzed with phosphoric acid and distilled, corresponds to about 14 or 15 percent of acetic acid. Emery⁷ has examined 56 samples of gum tragacanth, some of them authentic specimens obtained from Turkey and Persia, and has shown that the volatile acidity corresponds to about two or three percent of acetic acid only, while the acidity of gum obtained from *Sterculia urens* (21 samples) corresponds to about 16 percent of acetic acid. The similarity in the results of Emery and Robinson are noteworthy and suggest the close similarity of *Cochlospermum gossypium* and

¹ Dymock, Warden and Hooper, *Pharmacographia Indica*, I, 228 (1889-90).

² "What is Karaya Gum," *Scientific American Supplement*, 2137, 82, 393 (1916).

³ These tests are apparently based upon the work of Scoville, *Drug Circ.*, 53, 116-7 (1909).

⁴ "The Volatile Acidity of Gum Tragacanth Compared with that of Indian Gum," U. S. Department of Agriculture, *Bureau of Chemistry, Circular* 94, 3 (1912).

⁵ "Histoire Naturelle des Drogues Simples," 3, 454 (1876).

⁶ "The Gum of *Cochlospermum Gossypium*," *Journal Chemical Society Transactions*, 89, 1496-1505 (1906).

⁷ *Loc. cit.*

Sterculia urens. Cooke⁸ has indeed suggested that *Cochlospermum gossypium* has incorrectly been separated from the *Sterculiaceae*.

When moistened with water, karaya gum absorbs a large quantity and, like tragacanth, swells to several times its original size, forming a tasteless, nearly colorless mucilage. A 1 percent mucilage prepared by the writer from a good grade of karaya gum had a viscosity similar to that of a mucilage of tragacanth of about three-fourths the same concentration; a 1.5 percent mucilage of karaya was comparable to a 1 percent mucilage of tragacanth. The adhesiveness of a 1 percent mucilage of tragacanth was superior to that of a 1 percent mucilage of karaya gum.

Prebble⁹ states that: "From some comparative experiments made with codliver and castor oils it appears to be about equal to tragacanth as an emulsifying agent." Pluckiger,¹⁰ speaking of a similar gum from the related African species, *Sterculia tragacantha*, states that "as a means of promoting the adhesiveness of pilular masses I find" it "as advantageous as ordinary tragacanth," and also that "the African *Sterculia tragacantha* may be used both in pharmacy and in the arts instead of the usual drug of Asia Minor."

Maiden states¹¹ that the "uses of the gum are very limited; * * * From time to time samples have been sent to Europe for valuation but hitherto no use has been found for it and consequently it has no appreciable value in the markets. The only purpose for which it has hitherto been considered valuable is as an adulterant of tragacanth, but hardly as a substitute."

On the other hand, Dymock¹² states "Karai gond [Karaya gum] is used as a substitute for tragacanth and is issued from the [British] government stores."

Maiden did not appear to have a very good opinion regarding the possibility of karaya gum in the arts, but his work was done nearly thirty years ago at a time when even tragacanth was not as widely used in the arts as at the present time, and when the possibility of the use of karaya gum for technical uses had not been developed to any extent. Maiden, furthermore, refers to Cooke¹³ who, he states, found it to be valueless as a result of his experiments. Reference to the original, however, shows that Cooke's "experiments" consisted in the submission of several samples to commission merchants, who based their statements as to its lack of value upon mere inspection, unsupported by any chemical data or practical experiments.

Karaya gum is used extensively in India as a substitute for tragacanth in the preparation of sweetmeats, and also locally as a demulcent in the treatment of throat affections. The poorer grades are used very extensively in this country by calico printers. As an emulsifying agent karaya gum appears to be of value as a substitute for tragacanth, although from one-third to one-half more should be used, but on account of the slight acidity of karaya gum its use in certain prepara-

⁸ "Report on Gums and Resins of India," 31 (1874).

⁹ *Loc. cit.*, 230.

¹⁰ "On African Tragacanth," *Pharmaceutical Journal*, [2] 10, 641 (1869).

¹¹ "Sterculia Gum; Its Similarity and Dissimilarity to Tragacanth," *Pharmaceutical Journal*, [3] 20, 391-27 (1839).

¹² "Notes on India," *Pharmaceutical Journal*, [3] 8, 161 (1877).

¹³ *Loc. cit.*

tions may be objectionable. In general, however, this characteristic should not militate against its use as an excipient for pills and troches.

As may be seen from the foregoing, although inferior to tragacanth, karaya gum does have valuable characteristics, and its use for legitimate purposes should be encouraged. It is now selling for one-fourth to one-fifth of the price of tragacanth, and on account of its cheapness it is now being used rather extensively in the arts as a substitute for tragacanth. Karaya gum is considered especially worthy of the attention of pharmacists at this time because solutions of tragacanth and other gums¹⁴ are being recommended in quite a number of preparations as substitutes for glycerin, which is now in very large demand for war purposes.

CONSERVATION IN PHARMACY.*

BY A. R. L. DOHME.

These are abnormal times in which we are living, and standards of all kinds have been changed to meet the conditions set by a war which has no standard by which to measure it—exceeding in extent, intensity, destruction and influence on the entire world and everyone in it, that of all previous wars combined. The aim of the war now existing for about four years has been general and mutual destruction of all things. The magnitude of the operations and the world-wide nature of the same has taxed the resources of all nations to the limit. In money, the yard-stick is now billions—a figure previously only relegated to the imagination. In steel, ships, copper and explosives, the yard-stick is nation's entire output; in men, clothes, sugar, flour, cereals and foodstuffs, the yard-stick is the utmost capacity of the earth's productivity and the man power of the earth to supply and produce it. All laws are continually changing and freedom of action, thought or belief no longer exists anywhere on the earth. The press now rules the world and creates not only sentiment, position, influence and power, but holds in the palm of its hand the destinies of life of all peoples and individuals. Absolutism and terror now reign supreme all over the earth. It has become the solemn and serious duty of this great country of ours to step into the breach of the European cataclysm and holocaust and by the power of its manhood, the sacrifice of its people, the use of its vast resources in money and materials and the throwing into the balance of its determination, ingenuity and persistence, stay the onslaught of the Teuton columns and save the world from the rule of autocracy and might, thereby preserving for mankind the institutions of liberty, freedom and the pursuit of happiness. Without our intervention the cause of the Allies would have been lost. What a glorious opportunity for the land of the free and the home of the brave to come to the rescue of a tottering world about to fall a prey to Junkerism and the Divine right of kings. It hence becomes our duty, each and everyone of us, to do our share in every way we can by putting our shoulder to the wheels of the car of liberty and help it arrest the advance and eventually

¹⁴ Anon. "War Emergency Formulas," *Lancet*, 193, 766 (1917). Smith, "War Emergency Formulas," *American Druggist*, 66, 51-3, 102-4, 145-9 (1918). Wimmer, "Emergency Substitutes for Sugar, Syrup and Glycerin," *JOURNAL AMERICAN PHARMACEUTICAL ASSOCIATION*, 7, 39-46 (1918).

* Read before Section on Commercial Interests, A. Ph. A., Chicago meeting, 1918.

smother and destroy the car of Juggernaut, led and kept going by the war party or lauded aristocracy of Germany. Our share is to supply the medicines needed to cure the sick, heal the wounded and sustain the well, as well as to conserve all resources that enter into our lives and our business activities. Let us remember, however, that we must not sacrifice our main vocation and duty, which is the supplying of medical supplies, or in any way weaken or hamper it, by a false conception of a so-called patriotism claiming to conserve our needed raw materials for said medicinal agents.

Some ill-advised persons have apparently, under the guise of said so-called patriotism, appealed to the drug trade to change its formulas of medicines so as to conserve sugar, alcohol and glycerin. Assuming that these persons meant well and were not actuated by a desire to shine as patriots, so-called, I am prepared to prove and am therefore going to assert that their plea for conservation of these three important ingredients of medicines was impossible and in fact, dangerous. In the first place, these products are subject to Federal laws which are an integral part of the statutory law of the land and they cannot hence be altered without subjecting the maker of the product to the penalties of the law. In the second place, a change of formulas established after many decades of experience and study would, beyond question, subject the preparations to change in strength and keeping qualities that might and probably would render them of doubtful value. This probably would endanger the lives of both our soldiers and our civilians and this is something no patriot so-called nor a real patriot would or should dare to do. No chemist or pharmacist to-day can definitely say or determine without prolonged study and observation to what extent a reduction of alcoholic or glycerin strength will alter and depreciate the value or the utility of a medicinal preparation. The whole question was discussed at a hearing held by the U. S. Food Administration at Washington, attended by many of the experts of the Government including Doctors Alsberg and Kebler and by the writer and Dr. Frank R. Eldred, on behalf of the pharmacists of the country. It was first shown that there is no need to conserve alcohol any way, as there is more than enough for all needs for years to come, without considering at all the vast stores of damaged corn all over the land seeking sale for conversion into alcohol, as it is not fit for food. Next it was shown that the amount of sugar used in medicines is less than half of one percent of the amount used in the confectioner's trade alone. Since the latter is certainly a far less essential industry than medicines, whatever conservation of sugar that may be needed beyond that conserved in family use should come from the candy business and not from the drug business. Therefore sugar and alcohol were by mutual consent unanimously eliminated from the materials to be conserved in the preparation of medicinal preparations. When it came to glycerin it was found that the amount of glycerin used in the drug trade was an appreciable percentage of the amount made and used in this country. Thereupon the representatives of the drug interests at once volunteered to undertake a study of the preparations containing glycerin with an eye to reducing the amounts of this substance used in medicinal and toilet preparations. Undoubtedly toilet preparations are less essential than medicines and undoubtedly conservation should be had in toilet preparations before medicinal preparations are changed. At this point of the hearing Doctor Alsberg entered a strong protest against changing any

medicinal formulas except as a last resort and maintained that before such a determination is reached by the Food Administration, other less essential industries using glycerin should be appealed to and requested or instructed to curtail or replace their glycerin. As the Government executive to enforce the Pure Food and Drugs Act, Doctor Alsberg stated that he would protest against changes in official formulas because he would not assume the responsibility incurred by such changes, affecting as they might the lives of our boys in the trenches fighting for us the great battle of human liberty and freedom.

Summed up, therefore, there is no occasion to conserve sugar or alcohol in medicinal preparations and there may not be in conserving glycerin; but if this association desires to do its bit in a useful and practical way, it might name a committee, perhaps called a Conservation Committee, and authorize or instruct it to work upon all official preparations as well as non-official preparations containing glycerin with an eye to reducing the amount of glycerin used in the same. This might also be extended to toilet and cosmetic preparations. There are doubtless some preparations that contain too much glycerin, or rather more than they actually must contain in order to be efficient and permanent. The Allies have recently called upon Uncle Sam for twenty million pounds of glycerin for the remaining six months of this year, which is a material increase over former estimates. Whatever they need to win this war and we can possibly supply, we must strain every nerve to supply, and therefore glycerin conservation may be demanded of us before the end of this year.

DISCUSSION.

A. R. L. DORME: I was requested by your Chairman sometime during the past year to present the result of a hearing which was given by the United States Food Commission on the question of conservation of alcohol, glycerin and sugar. Concerning these there had been much propaganda spread over the country, rather disturbing to the drug trade in general, particularly as to recommendations looking to the changing of many of our imported formulas with alternatives, given more less at haphazard, and therefore fraught with a little bit of uncertainty and risk, we thought, to the practical interests of the country. In this paper I have endeavored, in a general way, to give you the result of that conference.

J. P. SNYDER: The subject of glycerin conservation is something that I have done some work on. I have been somewhat surprised to find that glycerin did not play such an important part as a solvent as I had been led to believe. I made experiments with camphorated tincture of opium, preparing the tincture according to the U. S. P. formula; also another, leaving out glycerin. Practically the same results were obtained; the analysts checked up very closely.

I also made experiments with ipocacuanha and, according to the results of these experiments, we may conserve glycerin in some of the preparations of this drug.

H. V. ARNY: Mr. Snyder's information is along the same line of a conversation which I had with Mr. Seoville yesterday. He had been experimenting along the same line. We certainly want, as far as possible, to conserve glycerin in preparations wherein it is not essential.

CHAIRMAN R. P. FISCHER: You will recall that Doctor Dohme suggested that it might be well for the Association to appoint a Conservation Committee. Will the Section take some action thereon?

H. V. ARNY: I would move that such a committee be appointed.

A. R. L. DORME: I am very glad this action has been taken by this Section, because, if we are going to make a strong effort at Washington for the recognition of pharmacy, in which the American Pharmaceutical Association is naturally going to be prominently mentioned, our desire to cooperate with the Government in conservation will help us in our efforts to secure recognition.

You recall, some of you, that were at the meeting yesterday, that Col. Raymond, of the U. S. Army Medical Supply Bureau, gave us a very interesting talk on the pharmacists in the United States Army. While I am not endeavoring to repeat to you exactly what he said, I will say this much, that he said: "If you expect to gain recognition in the United States Army, I think you should be guided by the same methods that the dentists used. The dentists, eight years ago, were in the same condition that you are now, when I addressed their National Association as I am now addressing your National Association, and to whom I said, that if they made themselves indispensable to the Army their recognition would come, and if you make yourselves indispensable and show that your services are as important as many other services to the Army in more ways than one and in as many ways as possible, your recognition will come." It seems to me that this is one method by which we can show our services are indispensable, namely, that we are trying to conserve something that the Government needs.

CONCERNING THREE CARDINAL POINTS IN PHARMACY.*

BY B. E. PRITCHARD.

With half a century to my credit in the pursuit of Pharmacy, I trust that it may not be considered impertinent to mention a few points pertaining thereto that seems to be susceptible to improvement.

When I entered upon this long period of what has proved to be my calling in life, there was nothing of what is now most properly denominated "Prerequisite Attainments" to measure up to before one could cross the threshold of pharmacy. My only attainments consisted of several years' experience as a newsboy on the streets of Pittsburgh, and a very limited attendance at the public school in my home district. At that time the word "Drugs" over the door of a place of business did not produce any greater impression upon the public mind than did that of a grocery, hardware, dry goods, or any of the other myriad stores that lined the public thoroughfare of any town or city. The drug store was simply a store and to the passer-by did not differ from any other store except in the matter of odor, which in those days was much more pronounced than now. It was just about that period in the evolution of things when mystery was beginning to detach itself from the drug business. The globular containers of various colored liquids were still in evidence and their brilliant flashes of light illuminated an occasional corner of a street. I say "occasional" in this connection, for the reason that drug stores were not so thickly strewn as we find them in these days. The title of "Pharmacy" was but seldom given, "Apothecary Shop" being the popular synonym, then most largely in use.

But perhaps all these preliminary remarks may have no interest for you, however much they mean to me as I recall my first introduction into the practice of pharmacy. The purpose I have in mind, however, will become apparent as I proceed to show how unprepared my mind was, and how poorly equipped was my brain to assimilate the complexities and deep things that pertain to the study of pharmacy and the branches of knowledge that necessarily go hand in hand therewith. Through all the years that have gone since my first entrance upon the practice of pharmacy, my ignorance of fundamentals has constantly been "a thorn in the flesh" and has proved a serious handicap in the way of my advancement. Hence, with my own experience to guide me, I feel it my bounden duty

* Read before Section on Education and Legislation, A. Ph. A., Atlantic City meeting, 1916.

upon every opportunity that presents itself to say to any young man who contemplates taking up pharmacy as his life work, "Be sure that you have had yourself properly prepared by sufficient preliminary education to be able to grasp intelligently the problems that will confront you every day after you have taken up the duties of your calling, and solve them yourself, guided by your own knowledge." What constitutes proper knowledge and how is it obtained? Time, patience, experience and a capacity for assimilation alone can bring one to a state of *almost* perfection, but no man ever fully gets there, although he is constantly adding to his attainments. Therefore I consider the most important and essential cardinal point, and the one most worthy of emphasis, is Sufficient Preliminary Education.

"What is it to be wise?

'Tis but to know how little can be known.

To see all others faults, and feel your own."

I am convinced that thorough knowledge of the theory of pharmacy and wide instruction in all the branches of education that come in the curriculum of a good college of pharmacy are essential—and no student should be given his diploma who has not shown himself capable of reaching the passing mark—yet, unless the student has been given the opportunity to familiarize himself with these teachings by coming into actual contact with them in the presence of the customer, all these will count for naught in the making of a competent pharmacist. Practical Experience is an absolutely necessary prerequisite in order to apply the knowledge which has been gained through lectures and the study of text-books. College training alone fails to make a person a success in business life; one must come into direct contact with the actual thing itself if he would feel himself thoroughly rounded out and ready to grapple with the problems that continually arise in his vocation. With what has already been said in mind, there can be but one answer to the query—"Who should be authorized to distribute medicines of any and all character?" Those only who by careful study and conscientious attention have properly qualified themselves for that duty. To knowledge must be added practical experience. To obtain such experience requires much time and long, patient, watchful waiting upon the methods and practices employed by those who have been our preceptors, who in turn have themselves been trained by others qualified to impart the necessary knowledge.

You ask how long it would be safe to leave one's assistant alone to grapple with the exigencies of every-day life in a pharmacy. Pretty hard question to answer, isn't it? Does two years' experience in the average drug store seem a satisfactory reply to this query? That is the standard that has been set by those men who have formulated most, if not all, of the pharmacy laws of the several states. Let me quote from one of these statutes which constitutes a fair sample. "Those applying for examination for certificates as qualified assistants therein must produce evidence of having not less than two years' experience in said business." What is meant by the words "said business?" The same statute will tell us that, it reads: "All persons who desire to become pharmacists must produce satisfactory evidence of having had not less than four years' practical experience in the business of retailing, compounding or dispensing of drugs, chemicals and poisons, and of compounding physicians' prescriptions;" and, furthermore, "of

being a graduate of some reputable and properly chartered college of pharmacy;" and still further, "must produce satisfactory evidence of having had not less than two years of high school training, or pass an examination equivalent thereto." And yet, after having successfully fulfilled all these preliminary requirements, and then successfully made the required 75 percent passing mark before the pharmaceutical examining board, the pharmacist can, under the pharmacy law, leave his business temporarily in care of one who has managed to emerge safely from a pharmaceutical board examination with such meagre knowledge as he may have been able to grasp while being employed, in any capacity, in a drug store for two years. Does the absurdity of the situation dawn upon you? Apart from his being a convenience to the pharmacist, has the assistant pharmacist a recognized position of value under our pharmacy laws? Is the public amply protected under the present requirements for registration of qualified assistants? Is he qualified? Is it worth while to continue provisions for his registration? Yes, but under more amplified prerequisite requirements than those that now obtain, which are but little removed from being farcical. Have I succeeded in making it apparent that a third cardinal point in pharmacy should by all means be Intelligent Service Always?

Sufficient Education, Practical Experience, Intelligent Service—given these three cardinal points, coupled with honesty, sobriety and a clean conscience, no man can fail to make his life a success.

MORE CONSISTENT PHARMACEUTICAL STANDARDS.*

BY FREDERICK J. WULLING.

Why camouflage any longer in pharmaceutical, educational and practical standards? Camouflage is a deception in favor of self-interest and is only justified as an expediency toward a right and righteous end. It is of two sorts: affirmative and negative. The affirmative is the justifiable kind. Nature indulges in this kind when it gives arctic animals white fur and the beasts of the tropic stripes and spots to make them one with the snowdrift and the jungle, respectively. The tree toad is of the color of the bark of the tree and green insects blend with the foliage. Nature's camouflage is intended to protect and preserve life and is therefore good. This idea has been applied to modern warfare. To deceive the camera and the telescope of the aviators and observers has become one of the chief aims of the firing line. Negative camouflage is the kind that is without affirmative results. It often produces the opposite.

In failing to adopt higher educational standards, except in spots, has not pharmacy camouflaged itself negatively? Hasn't the great body pharmaceutical deceived itself in believing its present standards high enough? Ought it not derive a lesson from the fact that medicine and dentistry, so akin to pharmacy, have prospered so significantly of late because of their accelerating educational standards? Does the fact that professional pharmacy has suffered dilution and attenua-

* Read before the American Conference of Pharmaceutical Faculties and the joint session of the Section on Education and Legislation, A. Ph. A., the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties.

tion through commercial activities, make a continued passive attitude toward standards commensurate with the times and with the responsibility of pharmaceutical practice, justifiable or wise? Does the pharmacist who dispenses five prescriptions a day need to be less safe and reliable than the one who devotes his full time to professional practice? Is it defensible that the physician who treats five patients a day be less qualified than the one who attends fifty daily? May the railroad engineer who runs a train fifty miles be less able and reliable than the one who runs a train through an entire division? The pharmacist, the physician, the engineer in each case needs the fullest measure of qualification irrespective of the service each gives quantitatively in his respective field of work. With higher standards go higher aims and purposes and proportionately better service. The higher the standards of a calling, the higher is the grade of those it attracts as its practitioners and trustees. I maintain that as pharmacists we are the trustees of our calling, morally obliged to administer upon it with the highest degree of efficiency and to hand it down to the next generation in a greatly improved condition. That is the method whereby civilization grows and evolves. Development and progress go forward through and by the highest degree of efficiency and achievement of the living generation, not by the measure of the mediocre. This fact is so self-evident that it hardly needs statement and yet, as a whole, the body pharmaceutic has camouflaged itself negatively concerning it. If in the past professional ideals and forethought had been more universal among pharmacists, standards would have increased more rapidly and the insidious aggression of commercialism would not have been possible. Commercialism is right and good and just as respectable as professionalism if in its place and if recognized as such. This fact is being increasingly recognized not only by the advocates of pure pharmacy, but also by the ultra-commercialists, who probably through economic allurements have entirely banished pharmacy from their establishments, thus creating the so-called "drugless drug stores" and releasing a certain amount of professional pharmacy to others.

The firmer establishment of professional pharmacy (it is regrettable that the phrase "professional pharmacy" must be used; the word "pharmacy" ought to imply without qualification a professional activity) is evidenced in every large center of population by the increasing number of ethical pharmacies and laboratories. This transition is under way, but needs for more momentum the assistance and encouragement of higher educational and, therefore, basic standards. These standards can be achieved only by their advocates. The advocates must do more missionary and constructive work and must utilize every legitimate agency toward the desired end, otherwise forces outside of pharmacy will step in and compel proper standards as has already been done in the State of Illinois. The work must be done by individuals and by organizations. The organized avowed advocates of higher standards are the American Pharmaceutical Association, the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy, named in the order of their establishment, in a happily increasing measure the National Association of Retail Druggists and many State and other associations.

Of these the National Association of Boards of Pharmacy is the most logical and powerful to bring about needed results. In the past the Boards have not,

as a whole, been conspicuous in endeavors to raise standards. Since their organization into a national body, progress is everywhere noticeable. I feel certain that Boards are made up of men whose majority want better things for pharmacy and who are open to suggestion and conviction. The Boards are the only agencies established by law with power to fix legal, educational and practical standards. The standards fixed by them taken together are too low. The mistake that the Boards have made and are making is a serious one and possibly may be construed as a dereliction of duty on part of the Boards in that they created standards largely representative of commercial pharmacy when in fact the legislatures creating them had in mind solely the regulation of the practice of professional pharmacy. Boards of pharmacy are only in the remotest degree related to commerce. No act creating any of the Boards can possibly be construed otherwise. Legislatures would be perverting their powers and functions if they intended otherwise. It is clear, beyond any possible doubt, that boards of pharmacy were created practically exclusively to fix pharmaceutical, educational and regulative standards enforceable at law and thus to regulate not commercial but professional practice. The Boards have absolutely no jurisdiction over the so-called commercial practices of pharmacists. They are powerless to enforce the law against pharmacists, except in its relation to professional practice established by statute. All this has not been sufficiently appreciated and understood, it seems to me, and hence the standards created by the Boards have been in the nature of a compromise when they should have been unequivocally based upon the ethical and professional activity of pharmacists.

The powers of the several Boards should possibly be increased in some respects by the respective legislatures, but it is my opinion that the Boards now have the power to require a four-year high school training of all applicants for licensure and that the great majority, if not all, have the power to require a college training in pharmacy. I have never heard any sufficient reasons why the Boards have not established adequate standards. Members of Boards have dogmatically expressed the opinion that the colleges should establish the standards. The fact is that whatever higher standards there are have largely been created by the colleges and against great odds, but the colleges have not and never can have legal powers to fix standards subject to enforcement by law. The Boards have this power. Some college entrance and graduation requirements are comparatively high now, but none are high enough. It is putting the cart before the horse to expect the colleges to establish enforceable standards. They are powerless to do this, and because of the great variance in the standards of the Boards the colleges do not and can not at present have uniform requirements. *The colleges necessarily are not all of the same grade, but the Boards are wholly or quite uniform in that they all possess practically the same regulative and legal powers.* Because of this it seems to me to be their duty as well as privilege, morally and educationally as well as legally, to establish uniform and adequate standards which the colleges *would be obliged to observe.* It should be particularly noted that the Boards have the power to fix standards which not only practical pharmacy must observe but also the colleges. On the other hand, colleges have no power to establish standards which the Boards would have to recognize. This clearly points to where the power to set standards lies. The National Association of Boards of Pharmacy is

the logical body through which the several Boards should be invited to do their duty more fully in this respect. Many uncomplimentary things have been said of the so-called second and third grade colleges. I am not their defender nor their advocate, but I recognize that in many cases they are the products of the prevailing conditions for which the Boards and other factors are more responsible than they. *The colleges and associations in most cases are the creations of the pharmacists, directly and indirectly, and are supposed to be and are helpful agencies primarily for the uplift of the calling. The Boards, on the other hand, are creations of the States for the benefit not of pharmacy, but of the people. They are the means whereby the States attempt to protect the people against incompetent practitioners and hence they are part of the people's self-defensive agencies. They are of those parts of the State's machinery which are charged with particular functions, for the carrying out of which they have all necessary power. Some of their particular functions are expressed in the acts creating them. While some of their powers are defined, some are inherent and implied. Under these latter the Boards can and do make reasonable rules and regulations which have the force of law. Part of these rules and regulations could consistently be made to include high school and, for the near future, college prerequisites. If this were done, it would at once put the colleges on an equality, in that respect at least, and would, among other things, do away with the unprofessional and undignified, though in a few cases justifiable, competition for students. The results would be an influx into pharmacy of a better and more uniform grade of apprentices who in due time by their superior training, intelligence and judgment, would elevate the calling to a professional and intellectual standard commensurate with the dignity and responsibility of a very important division of medicine which pharmacy really is. No fear would need to be had that the number of apprentices would decrease, because it is a fact abundantly proved by experience in medicine, dentistry, engineering, law and other learned callings, including the cases of some of the colleges of pharmacy, that increased requirements attract increasing numbers of matriculants. In the case of the College of Pharmacy of the University of Minnesota, increase of the minimum course to three years has resulted in a very perceptible increase in enrollment, contrary to the predictions of many.*

I hope I have succeeded in pointing out the underlying basic position and duties of the Boards, and that it will not be regarded as presumption on my part for having done so. I feel the Boards are under obligations which they have not, as a rule, fully recognized and fulfilled. Have they not been, possibly unconsciously, a deterrent factor when they should have been a leading one in the establishment of consistent and necessary basic standards? No more time and prestige should be lost, but prompt and energetic action should be collectively taken to make up for past remissness or indifference in the respect pointed out.

It should be said that the entire body pharmaceutic is partly, even largely, at fault in the matter because it has not been sufficiently interested and aggressive in the very element fundamental to the welfare of the profession and, therefore, fundamental to the welfare of those whom the calling serves. All organizations should encourage and rally to the support of the Boards in an effective and whole-hearted way by every proper means at their command. It would be patriotic and loyal to do this at once. The Government has practically implied that we

pharmacists as a class are not sufficiently educated and intelligent to be recognized as among the agencies qualified to be called upon to help prosecute this terrible war. Although we deny this the implication is not pleasant to contemplate. We ought forthwith to create such standards that this blot on our escutcheon would be forever removed. Talking and commiserating about the matter will not remedy the situation. A little courage and determined and united action are the remedies. The N. A. B. P. should take the initiative and all other associations should back it up energetically, forcefully and fraternally.

Possibly I should say in closing that all this is said in the most friendly spirit. We are all bound together in the bundle of life. I merely want to be helpful.

SUMMARY OF THE PROCEEDINGS OF THE 1918 MEETING OF THE
AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES
AT CHICAGO, ILLINOIS, AUGUST 12-13, 1918.

BY THEODORE J. BRADLEY, *Secretary*.

The nineteenth annual meeting of the American Conference of Pharmaceutical Faculties convened at the Congress Hotel, Chicago, on Monday, August 12, 1918, with representatives of twenty-six schools in attendance. Three sessions were held, and, in addition, a joint session with the National Association of Boards of Pharmacy.

Henry Kraemer of the University of Michigan was President of the Conference for 1917-1918 and presided at all sessions of the meeting. In his presidential address he discussed several topics of interest and importance to pharmacy and colleges of pharmacy, the most prominent of which was a strong plea for two distinct classes of drug stores, the commercial and the professional, with corresponding courses in colleges of pharmacy, one preparing for the practice of commercial pharmacy and the other for the practice of professional pharmacy. F. J. Wulling of Minnesota read a paper supporting the plea of President Kraemer for two kinds of pharmacies.

After consideration of recommendations made by President Kraemer, the Conference adopted the following resolutions:

1. That a special committee of three be appointed by the incoming president to consider and report on the question of the establishment of two distinct classes of pharmacies, namely, the commercial drug store and the professional pharmacy, this committee to work with a corresponding committee of the National Association of Boards of Pharmacy, if such a committee is appointed by that organization.
2. That a committee be appointed by the incoming president to work out methods of presenting the advantages of pharmacy as a calling to high school students of the country.
3. To continue the agitation for the standardization of degrees granted by colleges of pharmacy.

The report of Secretary-Treasurer T. J. Bradley of Massachusetts showed that the Conference now has forty-six member schools, and that the finances of the organization are in a prosperous condition, there being a balance of slightly more than a thousand dollars in the treasury, with all bills paid. On recommendation of the Secretary-Treasurer it was voted to request that the proceedings of the joint session of the Conference and the Association of Boards of Pharmacy be published in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Chairman J. A. Koch made a report for the Executive Committee, in which it was shown that 58 percent of the new students matriculated in 1917 in the colleges of pharmacy of the country were graduates of high schools, or had an equal or better preliminary education, and that the other 42 percent of the new matriculants had completed one to three years of high school work. It was also

reported that the Carnegie Foundation has promised to give early attention to the question of the investigation and classification of pharmacy schools, in a manner similar to the investigation made of medical schools a few years ago.

The report of the Executive Committee also dealt with the question of military instruction for students in colleges of pharmacy and this subject was discussed at length. It appears possible that students will be allowed to enlist in a reserve army for military instruction, and it is to be the policy of the Government that they be not called for service, except in great emergency, until their college courses are completed, provided that their college work is of satisfactory quality.

The report of the Pharmaceutical Syllabus Committee was presented by W. C. Anderson of New York. This committee reported that the preparation of the third edition of the *Syllabus* is well under way, and the Conference voted to continue its annual contribution of twenty-five dollars towards the expenses of this Committee.

Memoirs of the services to pharmaceutical education of men who have passed away during the past year were presented as follows: J. P. Remington, by W. B. Day; Charles Caspari, Jr., by E. F. Kelly; A. B. Husted, by William Mansfield; and J. H. Long, by M. A. Miner.

Reports were received from the nine standing committees and from one special committee, including matter of much value, which will appear in the annual volume of the proceedings of the Conference.

The Conference voted to instruct its Secretary to communicate to the Surgeon General of the United States Army its belief in the erroneousness of a statement widely published and attributed to an officer in the Surgeon General's office, that there are but eight reputable and worthy schools of pharmacy in the United States.

The officers of the Conference elected and installed for the ensuing year are: *President*, Charles B. Jordan, Purdue University School of Pharmacy, Lafayette, Indiana; *Vice-President*, William Mansfield, Albany College of Pharmacy, Albany, New York; *Secretary-Treasurer*, Theodore J. Bradley, Massachusetts College of Pharmacy, Boston; *Chairman of the Executive Committee*, Julius A. Koch, Pittsburgh College of Pharmacy, Pittsburgh, Pa.

MAILING AMERICAN PHARMACEUTICAL ASSOCIATION JOURNALS TO MEN IN THE ARMY AND NAVY.

In reply to your letter of the 20th *ultimo*, with regard to the THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, I have to say that the arrangement under which unwrapped and unaddressed magazines intended for soldiers and sailors may be mailed by the public at the postage of one cent each is applicable only to such publications as constitute magazines within the ordinary meaning of that term, that is, magazines devoted to literature or containing articles of general interest, and not to newspapers or other publications devoted in the main to matter of purely local or restricted interest.

In this connection, I have to say, however, that the readers of THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, desiring to send copies thereof to soldiers and sailors stationed in the cantonments or with the American Expeditionary Forces abroad, may mail them at the transient second-class rate—one cent for each four ounces or fraction thereof—provided they are properly wrapped and addressed—the name of the particular individual, together with the designation of the unit or organization to which he belongs, and the words "American Expeditionary Forces" being placed upon wrapper of each copy or package.

Respectfully,

THIRD ASSISTANT POSTMASTER GENERAL.

SUMMARY OF THE PROCEEDINGS OF THE FIFTEENTH ANNUAL
MEETING OF THE NATIONAL ASSOCIATION OF BOARDS OF
PHARMACY AT CHICAGO, AUGUST 12-13, 1918.BY H. C. CHRISTENSEN, *Secretary*.

The Fifteenth Annual Meeting of the National Association Boards of Pharmacy held in Chicago on Monday and Tuesday, August 12 and 13 was, in point of interest, accomplishments and spirit of determination, to exert greater efforts than ever before, to make progress along the now well-recognized lines of the Association's work, the most successful ever held.

The Boards of Pharmacy of twenty-seven States were represented as follows: Alabama, Arkansas, Colorado, Connecticut, Florida, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New York, North Dakota, Oklahoma, South Carolina, Tennessee, Texas, Utah, Vermont, West Virginia, Wisconsin; total number of delegates and Associate delegates present, 53. Of the States represented 25 are Active member states, and two—New York and New Jersey—are "Associate" member States. Forty-four states, including the District of Columbia, are now Active member states of the N. A. B. P. and two, as before mentioned, are Associate member States. This leaves only three non-member States, namely, Rhode Island in the East and California and Wyoming in the West.

Active member states are those between which reciprocity for licentiates is in force. Associate member states take part in all the activities of the Association with the exception that, on account of state laws or other conditions, these have no general reciprocity with other member states.

Inasmuch as the official reporter of the meetings was called to Washington immediately after the final session Tuesday evening, before a transcript for a synopsis of the proceedings could be made, this report presents only such features as the secretary was able to recall, including the most important recommendations which were adopted.

The recommendations offered by President W. P. Porterfield which were adopted unanimously, show better than any other feature of the meeting the temper and unquestioned sincerity not only of the N. A. B. P. as an association, but also of the individual member Boards of Pharmacy holding membership in the Association.

Recommendation No. 1:

WHEREAS, An increasing number of states have established graduation from a recognized College of Pharmacy as a prerequisite for examination as a licensed pharmacist, and

WHEREAS, The courses offered by these schools become an all-important matter, be it

Resolved, That the N. A. B. P. take steps to establish a minimum standard for said courses upon which said recognition shall be based.

This resolution brought out considerable discussion and it was finally voted to refer it to the Executive Committee, and that Committee was instructed to confer with the Syllabus Committee in an effort to prepare a plan for recognition to be recommended to the individual member State Boards for adoption.

Recommendation No. 2:

WHEREAS, States generally require a definite amount of high school instruction or equivalent as a prerequisite for examination, be it

Resolved, That the N. A. B. P. take steps to establish a minimum requirement for each year of high school work—same to be represented by "Units" or other acceptable designation

This was referred, the same as No. 1, to be considered jointly by the N. A. B. P. Executive Committee and the Syllabus Committee, with instructions to report a plan for general adoption.

Recommendation No. 3:

WHEREAS, It is apparent that the best interests of both the public and the druggists are

served by having two classes of pharmacists generally designated as Registered Pharmacist, and Assistant; be it hereby

Recommended, That efforts be made in all States where not already provided, to establish two classes of pharmacists (Registered Pharmacist, and Assistant Registered Pharmacists).

Recommendation No. 3 was unanimously adopted and referred to the Executive Committee with instructions to place the same in the hands of the incoming legislative committee. It was brought out that legislative bodies will convene in nearly forty states the coming winter. The legislative committee will be instructed to get in touch with Boards of Pharmacy and State Association legislative committees and to assist these bodies wherever possible in securing amendments to laws in States where no provision is made for Assistant Registered Pharmacist.

Recommendation No. 4:

WHEREAS, There are, in general, two classes of pharmacists recognized by various States, designated as Registered Pharmacist and Assistant Registered Pharmacist, or otherwise; and

WHEREAS, The line of demarcation between these two groups is growing sharper; and

WHEREAS, The requirements for the Registered Pharmacist is becoming distinctly greater in scope and character than the requirements necessary for Assistant Pharmacist; be it

Resolved, That this Association recommend that separate sets of questions be prepared for these two classes, and not merely the classification be based on higher and lower percent grades made on the same set of questions.

Recommendation No. 5:

WHEREAS, It is apparent that conditions in a number of States are such as will prevent Boards of Pharmacy in these States from complying with the recommendation of the N. A. B. P., adopted in 1915, to require high school graduation (4 years) in 1920 for entrance to examinations for Registered Pharmacist; be it, therefore

Resolved, That this Association extend the high school requirement to become effective January 1, 1923.

Recommendation No. 6:

WHEREAS, The National Association Boards of Pharmacy representing as it does the legal bodies—The State Boards of Pharmacy—in the various member States which have or should have the power to fix standards and requirements for entrance to examinations before these bodies for Pharmacist, be it hereby

Resolved, That this Association go on record as recommending that all Boards of Pharmacy holding membership in this Association should require not later than January 1, 1920, that candidates for examination for Registered Pharmacist must have had at least two years satisfactorily completed high school work.

Recommendations Nos. 4, 5 and 6 were adopted.

The discussion on recommendations Nos. 5 and 6 showed clearly that, while the high school requirement was extended to 1923, corresponding to the time adopted by the Conference Schools for such requirement, many Boards, probably a majority, will require full four-year high school for entrance to examination for Registered Pharmacist before that time.

Considerable discussion was had with regard to the Edmonds bill. H. L. Meredith, chairman N. A. B. P. Committee on National Legislation, presented an interesting report on work done by his Committee in the interest of this bill. The report will be published in full in the Proceedings of the N. A. B. P. Results with regard to the advancement of this measure have so far not been satisfactory. Further efforts will be made by Mr. Meredith's Committee to obtain favorable action and, whatever the outcome, the N. A. B. P. will feel that its efforts in the interest of this bill which seeks recognition for our pharmacists in the Army in order that they may be able to render the best possible service, has been of a character that reflects much credit to this Committee and especially to Chairman Meredith.

Reports made by both the Legislative and Executive Committees showed good work accomplished.

The Chairman of the Advisory Examination Committee reported that several State Boards had been visited during the year and that a number of sets of questions had been sent in for suggestions and criticisms. He stated further that so far as was possible the Committee had complied with requests for criticism and suggestions with regard to examination papers. Also that the improvement in the character of questions used, and method of examinations showed a marked improvement.

Continuing the report stated as follows: If there is any criticism to be made specifically, it is, that a number of our members still do not give recognition in their questions, of the existence of the new ninth revision of the Pharmacopoeia. This work is a great improvement over all previous editions—embracing many new and valuable features. It should be the duty of every examining board to satisfy itself, through its examinations that applicants are fully conversant with current revisions of the U. S. P. and the N. F.

The trend of the U. S. P. toward the scientific is one of the most encouraging signs of the times for pharmacy. But, in order to profit by this progress, both schools of pharmacy and State examining bodies must take advantage of the opportunity offered to readjust their courses in pharmacy and include in the scope of State Board of Pharmacy examinations questions relating to the many new features covered by ninth revision of the Pharmacopoeia and the fourth edition of the National Formulary. The improvement, progress and readjustment necessary, is so apparent, that the urgent need of advancing to a 3-year course for Ph.G. with at least high school graduation as an entrance requirement, can not be questioned by any having the best interests of pharmacy at heart. And, when it is intimated that it is necessary for schools and colleges to adopt these advanced standards it is meant of course that boards of pharmacy must likewise prepare to require these prerequisites for entrance to examination for full Registered Pharmacist.

Some, on first thought, while granting the necessity for the advanced standards outlined in the foregoing paragraph, will hold that we should go easy on advancing standards at this time. True, the draft has taken heavy toll from the class of men composing the body of Registered Pharmacist, especially between the ages of 21 and 31. This has produced in practically all States a shortage of drug clerks. It should be acknowledged, however, that the demand is for clerks, ordinary, every day clerks, not proprietors, not managers, but just clerks. These clerks must of course have the knowledge and experience necessary to qualify them to sell and dispense medicines with safety to the public. In order to be a safe person to sell and dispense drugs, medicines and poisons to the public a clerk acts as assistant to the proprietor or manager, who should in all cases be fully registered persons, but such assistants need not necessarily be required to have the supposed high qualifications of the fully registered proprietor. The point is this: No matter how high the requirements for full registration a sufficient number of pharmacists will be forthcoming to fill the necessary need for proprietors.

It is for the reasons stated, therefore, that the present shortage of drug clerks throughout the United States has emphasized as never before the necessity for two classes of pharmacists in every state, of Registered Pharmacist, and Assistant Registered Pharmacist. A considerable number of the States now have these two classes, but in a very few States has the provision for assistants, as a source of supply of clerks been given the consideration that it deserves.

This proposition fits in well with that of raising the standards for full registration. The lower the standards for full registration the larger the supply of proprietors. But, as it is not proprietors that are needed, why not increase the qualifications required for entrance to examinations for Registered Pharmacist and thereby bring pharmacy on a par with other professions? If the present status of pharmacy, with regard to preliminary and professional training were equal to that of medicine and dentistry we would not be having the trouble that now obtains in securing recognition for pharmacy in the Army.

SIXTY-SIXTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, CHICAGO, ILL., AUGUST 13-17, 1918.

ABSTRACT OF THE MINUTES OF THE FIRST GENERAL SESSION.

The First General Session of the Sixty-sixth Annual Meeting of the American Pharmaceutical Association was called to order in the Gold Room of Congress Hotel, Chicago, Tuesday evening, August 13, 1918, at 8.00 P.M. by President A. R. L. Dohme. (A list of those in attendance will be found under Societies and Colleges.)

After introductory and congratulatory remarks President Dohme called on Ex-President John Uri Lloyd of Cincinnati for the invocation. In his appeal Professor Lloyd referred to those with whom he had been associated in the past, whose duties had been assumed by those present, and expressed the hope for a successful convention which implied a helpfulness for the world.

President Dohme then invited representatives of the Government to deliver their messages and extended them a welcome. Lieut. Lawrence Zempsch spoke for the Navy Department. (Lieutenant Zempsch is one of eighty-two pharmacists of commissioned rank in the Navy. His rank is that of Lieutenant Junior Grade in the Medical Department, and he is stationed at Great Lakes Naval Training Station.)

The speaker extended an invitation to the members to visit the Training Station, where 50,000 of America's finest youths are preparing for their duties. He then explained the position of pharmacists in the service and contended that educated pharmacists had advantages they would not have without such education. He stated that before the war there were twenty-three pharmacists and a chief pharmacist in the Navy. To-day there are two hundred and seventy-one actively listed; eighty-two of these, after having passed a severe competitive examination as to their pharmaceutical knowledge, and their ability as first-aid men, as sanitary inspectors, X-ray technicians, laboratory workers, etc., have been given commissions. They have been commissioned for the period of the war as temporary surgeons of the United States Navy, with the rank of Lieutenant Junior Grade and Lieutenant in line for promotion to that of Lieutenant Commander, which is equal to that of Major in the Army.

Dr. Lyman F. Kebler conveyed the greetings of the Bureau of Chemistry, U. S. Department of Agriculture. He was reminded that this was the twenty-fifth anniversary of his wedding and of his first attendance (in Chicago, 1893) at a meeting of the American Pharmaceutical Association. Another representative of the Department was C. O. Ewing of the Pharmacognosy Laboratory. He stated that while Doctor Kebler was rounding out his twenty-fifth year of attendance, this was his first, but he hoped to be present twenty-five years hence.

President Dohme in responding said in part: "On behalf of the American Pharmaceutical Association it affords me great pleasure to thank you for your interest and valued remarks. I want to assure you it is a great pleasure for us to have you with us, and to participate in our proceedings and attend our various sectional meetings.

"I do not think there is a member of this profession, anywhere in this country, who is not imbued thoroughly with the conviction that it is a part of his duty 'to do his bit' and serve his country in whatever way he can. The great trouble is that the full opportunity for so doing has not presented itself. Surely, it is not because of lack of effort on our part to offer our services and to insist upon their acceptance, if possible. We hope fervently before this war is much older that pharmacists will be in the service of their country in the position in which they can be of greatest service, namely, as pharmacists."

Vice-President Leonard A. Seltzer of Detroit then assumed the chair while President Dohme presented his address. (See August issue of the JOURNAL, p. 605, *et seq.*, also this (September) number for plan of federation.)

After the reading of the address, and on motion duly made, seconded and carried, the President's address was referred to a committee consisting of Messrs. W. C. Anderson, J. A. Koch, H. P. Hynson, T. J. Bradley and J. C. Peacock.

President Dohme then resumed the chair.

The minutes of the Council were read by Secretary J. W. England. On motion of W. C. Anderson, which was seconded by Charles H. LaWall, the minutes were approved by unanimous vote. (See Council Business.)

Secretary William B. Day then read the list of special and standing committees. The President announced that reports from the respective chairmen would be called for at the next General Session.

President Dohme appointed the following members of the Committee on Resolutions: Messrs. S. C. Henry, J. H. Beal, Jeannot Hostmann, O. F. Claus, W. C. Anderson, Clair A. Dye, J. W. England, Jacob Diner, S. L. Hilton and F. J. Wulling.

H. P. Hynson offered an amendment to the by-laws, which was received and referred to the Council. It follows:

Amend Chapter VIII, Article III, by adding:

"and if the number of members of the American Pharmaceutical Association, who are members in good standing of any State Association, shall equal twenty-five per centum of the actual number of members of such a State Association, then the reduction shall be five dollars, making the net amount to be paid three dollars."

making the amended Article read—

"Every member shall pay *in advance* to the Treasurer the sum of four dollars as annual dues, and by neglecting to pay said contribution for six successive months may be dropped from the roll of members. If the annual dues (four dollars) and the annual subscription to the JOURNAL (four dollars) be paid at one and the same time a reduction of three dollars shall be allowed, and if the number of members of the American Pharmaceutical Association who are members in good standing of any State Association shall equal twenty-five per centum of the actual number of members of such a State Association, then the reduction shall be five dollars, making the net amount to be paid three dollars."

The Chair then declared a recess for the selection of the Nominating Committee. After reconvening the following were announced as members of the Nominating Committee:

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| Alabama: | W. E. Bingham. |
| Arkansas: | W. C. Hogan and Frank Schachleiter |
| District of Columbia: | L. F. Kebler and S. L. Hilton. |
| Illinois: | Wm. Gray and Otto H. Mentz. |
| Indiana: | C. B. Jordan and F. W. Meissner. |
| Iowa: | W. J. Teeters and Chas. Falkenhainer. |
| Kansas: | L. E. Sayre and Edward Dorsey. |
| Kentucky: | J. W. Gayle. |
| Maryland: | W. M. Powell and E. F. Kelly. |
| Massachusetts: | T. J. Bradley and J. G. Godding. |
| Michigan: | Henry Kraemer and George Snyder. |
| Minnesota: | H. W. Rutske and L. J. Aberwald. |
| Missouri: | Otto F. Claus and H. M. Whelpley. |
| Nebraska: | R. A. Lyman and H. L. Thompson. |
| New Jersey: | Chas. W. Holzhauer and Jeannot Hostmann. |
| New York: | Wm. Mansfield and J. P. Snyder. |
| Ohio: | Robt. W. Terry and Eugene Selzer. |
| Pennsylvania: | J. C. Peacock and Freeman P. Stroup. |
| South Carolina: | W. H. Ziegler |
| South Dakota: | F. L. Vilas and Mrs. H. R. Kenaston. |
| Tennessee: | Harry Whitehouse and E. V. Sheeley. |

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| Texas: | W. H. Cousins and E. G. Eberle. |
| Vermont: | F. D. Pierce. |
| Virginia: | W. F. Rudd. |
| Wisconsin: | Edw. G. Ruenzel and E. G. Raenber. |

The President appointed the following members: Messrs. Charles H. LaWall, S. C. Henry, H. P. Hynson, F. E. Stewart, and J. W. England.

The First General Session was then adjourned.

SECOND GENERAL SESSION.

The Second General Session of the American Pharmaceutical Association was convened by President A. R. L. Dohme, Thursday, August 15, at 8.15 P.M.

The minutes of the First General Session were read and approved. (See preceding minutes.)

The minutes of the fourth and fifth sessions of the Council were then separately read by Secretary J. W. England and after a motion of L. E. Sayre and a second by Otto F. Claus the Association voted to approve the minutes. (See Council Business.)

Secretary William B. Day read communications from Mrs. Fletcher Howard, president of the Ladies' Auxiliary of the California State Druggists' Association, and one from Mrs. Emma Gary Wallace, corresponding secretary of the Women's Organization of the National Association of Retail Druggists. Both conveyed greetings and wishes for a successful meeting. The messages were accepted with due recognition by the Association.

President Dohme laid a letter before the Association from a gentleman in France in which the suggestion is made that a fund be raised for aiding French pharmacists. President Dohme stated that the proposed plan had the approval of the French Ambassador. The letter follows:

PROPOSAL OF ESTABLISHMENT OF A FUNDING LOAN FOR THE USE OF PHARMACISTS IN THE DEVASTATED REGIONS OF FRANCE AND BELGIUM WHO ARE DESIROUS OF RECOMMENCING BUSINESS WITHOUT DELAY.

As a consequence of the invasion and of the battles which have taken place in the north and the east of France, as well as in Belgium, nearly all the pharmacists there have had to leave their stores and frequently all their earthly possessions. Since then they have supported their families by undertaking the management of other stores or by helping their more fortunate colleagues, but in view of the length of the war they must take the future into consideration and taking into account the great difficulties which will have to be overcome in order to establish and run a business in the sections that are absolutely ruined, they are considering the advisability of buying now a small store in some other part of France, even if they may have to sell it again later, or when their presence in their native towns will be needed.

In the countries which have been the scene of these long battles nothing exists now. The corporations which have undertaken the reconstruction of these countries are in great doubt concerning their future (we, who are intimately associated with this work, know how true this is); some years must pass before it will be possible to reinstate a pharmacy in those regions where life will have to be recommenced, where it will be needful to act as in colonization, and where a drug store, however useful, is scarcely that which is of first importance in a new colony.

Ought we to abandon these pharmacists, who have had to contend with such difficulties for the past four years? Must we let them wait many years more until it be possible for them to return to their native towns? To reply to these questions it will suffice to quote the following letter from one of our colleagues of the Somme, who in the fall of 1917 was able to return to his city:

"My re-installation is very difficult and must be only partial in consequence of the obstacles I encounter in finding the goods and materials, all costing fearfully dear. Life is hard here; no bedding, other than the camp sacking, tiring and cold, especially for children. Food of all kinds costs twice as much as in Paris, frequently even more. Those who have returned—

poor souls—ought to be millionaires, which is far from being the case. The rare workmen who are to be found here ask 2 francs an hour, and they are not to be had when they are wanted. The houses which have not been demolished have neither doors nor windows, which are replaced by sacking. The walls, pierced here and there, show the traces of the passage of the shells and threatening winter will soon be on us.”

These lines do not need comment, but to complete the sad picture, and as a sequel to the first one, our colleague wrote us as follows on the 30th of March:

“After a tiresome and perilous journey I have at last reached Rouen; all my work of the last 8 months has been destroyed.” Then follows a pressing appeal for a position as manager. This colleague used to occupy a good position before the war; he is now 60 years old, with a large family.

On the other hand, if it be considered that a great many drug stores are at present being offered for sale in France, and that it would be doing a good action towards our colleagues who wish to sell, and to their families, in aiding in the sale of their stores, it will not be difficult to find a solution of the question.

On one side many want to sell; on the other side, there are many desirous of buying, but they can only do so under onerous conditions; one of them would have had to pay 20 per cent for the aid received. By establishing a funding loan under reasonable conditions, help will be given to two different classes of interesting people. It is necessary that no time be lost, and if something really good is to be done it has to be done *now*.

Our colleagues of the invaded provinces have suffered and have aged with their misfortunes; so that they do not die in misery they ask not to have to wait until after the war to make themselves a new home. They wish to find the means of securing a loan for the amount needed for their prompt re-establishment. As guaranty they could offer (1) a mortgage on the store they would purchase, (2) a cession of their right to an indemnity for damage done by the war, which they will most certainly receive.

We are of the opinion that the amount of money needed for this undertaking will not be immense; the borrowers will be able to repay the advances with some speed, the amount to be repaid not being very heavy, as for cash payments the sellers can not ask very much. Supposing that the amount be 5,000 or 10,000 francs, and that, say, 50 pharmacists avail themselves of the facilities during the first year; that would imply a capital of from 250,000 to 500,000 francs or, say, \$100,000. We think that being known, the generosity which animates all America towards their less fortunate brethren in France and Belgium will make it a comparatively easy task to find 5,000 pharmacists in the United States who would subscribe \$20.00 each to help their colleagues in distress. We do not ask for this sum as a gift, but merely as a loan, on which we will gladly pay the interest until the capital—by degrees—be returned.

Jacob Diner in discussing the proposition referred back to a somewhat similar action which was taken after the San Francisco earthquake and stated that it was his understanding that all the money loaned to pharmacists was fully repaid. He spoke of this proposal as worthy of the Association's interest and moved the appointment of a committee to devise ways and means for carrying the suggestion into effect.

L. E. Sayre seconded the motion, S. E. Ewing moved to amend and apply the move to all distressed pharmacists in the war zone. This motion was seconded by Samuel L. Antonow. The mover of the first motion accepted of the amendment and the President called for a vote which was unanimously favorable to the proposition. The appointment of the committee was left to the Chairman.

The report of the General Secretary was read and approved. (To be printed.) The report of the Committee on Nominations was called for. It follows:

REPORT OF COMMITTEE ON NOMINATIONS.

To the President, Officers and Members of the American Pharmaceutical Association:

Your Committee on Nominations takes pleasure in presenting to you this report. The Committee has held two meetings. After we adjourned the first session, Dr. H. V. Army, who had been nominated for the presidency, placed in the chairman's hands a letter declining the

honor. The Committee was therefore reconvened and Doctor Arny's declination was accepted with regrets, and the vacancy accordingly filled. The names we have to submit are:

For President: L. E. Sayre, Kansas; L. A. Seltzer, Michigan; and E. N. Gathercoal, Illinois

For First Vice-President: T. J. Bradley, Massachusetts; A. H. Clark, Illinois; and W. H. Rudder, Indiana.

For Second Vice-President: Harry Whitehouse, Tennessee; John Culley, Utah; and Zada M. Cooper, Iowa

For Third Vice-President: Jacob Diner, New York; E. F. Cook, Pennsylvania; Adolph Emenhofer, Illinois.

For Members of the Council: J. H. Beal, New York; R. A. Lyman, Nebraska; E. H. Thiesing, Ohio; S. L. Hilton, District of Columbia; William Mansfield, New York; C. H. LaWall, Pennsylvania; H. B. Mason, Michigan; W. J. Teeters, Iowa; and C. M. Snow, Illinois.

Respectfully submitted,

S. C. HENRY, *Chairman.*

S. L. HILTON, *Secretary.*

The report of the Committee was accepted and the names presented were declared the nominees to be voted on for the election of officers for 1919-1920.

Treasurer H. M. Whelpley made a verbal report and explained that the books and other records of the Treasurer had been audited. (The report was printed in the May issue of the JOURNAL, p. 474.)

He stated that while the funds of the Association amounted to \$86,038.69 there was some difficulty in meeting the Association expenses from the annual receipts and he urged an increase of the membership.

The report of the Committee on International Pharmaceutical Nomenclature was called for, but no report was made.

The report of the Committee on Compulsory Health Insurance was read and referred for publication. (To be printed.)

No report was made by the Committee on National Legislation.

The Committee on the President's Address reported as follows:

REPORT OF THE COMMITTEE ON THE PRESIDENT'S ADDRESS.

To the Officers and Members of the American Pharmaceutical Association:

Your Committee has given careful consideration to the address of President Dohme, and while the author makes no definite proposals or recommendations, a sense of appreciation of the careful thought given to the preparation of the paper, the evident unselfish interest of the author and the essentially constructive spirit pervading the address, led the Committee to call attention to its leading features. All of the parts of the address that so earnestly and hopefully refer to the federation of pan-pharmacy are commendatorily referred to all those committees, conferences and divisions of the Association that have to do with this great effort.

The President is congratulated upon the progress made toward federation due to his enthusiasm and constructive effort.

Your Committee suggests that the remarks of the President under the sub-heading "Pharmacy Corps in the Army" be referred to the Association's delegates to the National Drug Trade Conference.

With the same object in view, that is, the proper distribution of the President's remarks, we suggest that those referring to the "Funds of the A. Ph. A." be called to the attention of the Standing Committee on Invested Savings and Trust Funds.

It is requested that the General Secretary of the Association send separate copies of the other sections of the President's address to the chief officer of the division or to the chairman of the committee who has the particular subject in hand, for consideration. They are, respectively, as follows:

"Presentation of Papers at Section Meetings." To the chairmen of the several Sections.

"U. S. P. Revision." To the chairman of the Committee on the Revision of the U. S. P.

"House of Delegates." To the chairman of that body.

"Pharmaceutical Education." To the chairman of the Section on Education and Legislation.

"Time of Meeting:" To the chairman of the Committee on Time and Place of Meeting.

The remarks of the President on the publication of the annual proceedings, specifically, are called to the attention of the Association with the recommendation of this Committee that the Committee on Publication consider the propriety and advisability of holding the plates of the proceedings used in the JOURNAL, and including this matter in the Year Book when it is published.

Respectfully submitted,

HENRY P. HYNSON,
W. C. ANDERSON,
J. A. KOCH,
T. J. BRADLEY,
J. C. PEACOCK.

The report was unanimously adopted by vote of the Association.

Chairman J. W. England of the Committee on Revision of the Constitution and By-Laws presented several proposed amendments, necessitated by action of the Association and House of Delegates. They were read and in accordance with the rules laid over for action at the next General session. (For report see minutes of Final General Session.)

The report of the Committee on Physiological Testing was read and referred for publication. (To be printed.)

The report of the Committee on the Status of Pharmacists in the Government Service was presented by Chairman S. L. Hilton. He enlarged upon the report and after discussion it was moved by William Mansfield and seconded by L. E. Sayre that the report with Chairman Hilton's remarks thereon be printed in the September issue of the JOURNAL and that 5000 reprints be made thereof. The motion carried unanimously. (Printed in this number of the JOURNAL.)

Chairman Theodore J. Bradley presented the report of the Syllabus Committee. It was recommended that the Council provide the annual contribution of twenty-five dollars. (Report to be printed.)

H. V. Army on behalf of the Committee on Weights and Measures moved that the Council be requested to provide for the annual membership fee in the American Metric Association. The motion was seconded and carried.

Chairman F. H. Freericks moved that the report of the Committee on Model Pharmacy Law be made before the Joint Session of the Section on Education and Legislation, the A. C. P. F. and N. A. B. P. It was so ordered.

A letter from William R. White of Nashville was read by Secretary Day in which he expressed the hope for a discussion of the best means for supplying pharmacists in the Service with pharmaceutical publications. After discussion it was the consensus of opinion that the best way would be for each member to send such publications to individual pharmacists, and that thereby the best service would be rendered. It was advised that this should be made known to all members and their coöperation solicited.

The report of Chairman John F. Hancock of the William Procter, Jr., Monument Fund was accompanied by a letter conveying greetings and expressing his regrets because of enforced absence. The report follows:

REPORT OF COMMITTEE ON WILLIAM PROCTER, JR., MONUMENT FUND.

In 1904, the American Pharmaceutical Association, at its Annual Meeting, adopted a resolution to appoint a committee to collect money for a proposed monument to the father of American Pharmacy, Prof. Wm. Procter, Jr., which monument of bronze was to be placed in the public grounds of the National Capitol.

Since that time the Committee on the Wm. Procter, Jr., Monument Fund has reported the results of its labors at each annual meeting of this Association and it was expected that this monument would be erected and formally transferred to the Government during the Centennial year of Procter's birth, at which time the Association would hold its Annual Meeting in Washington, D. C., to dignify the services of its unveiling.

Your Committee feels that the monument would have been completed in time for the Anniversary had it not been for the disturbed conditions of our National affairs. Congress, however, is so busy with war propositions that it will not give its consideration to minor matters but when peace returns we feel assured that the site and design for the monument will be approved.

The money collected has been conserved by the Association, and the Treasurer will report present conditions and the amount that is in his hands.

J. F. HANCOCK, *Chairman*.

The report was referred for publication.

The report of the Committee on Horticultural Nomenclature was read by Secretary Day. The report was received with thanks of the Association and the matter of financial contribution referred to the Council. (To be printed.)

The report of the Committee on Time and Place was read and after some discussion adopted. The difference of opinion was solely on the question of whether the Association should instruct not to hold the annual meeting in July or August. The vote finally declared was that due consideration should be given, if possible, to the President's recommendation of not holding the annual conventions in July or August. New York City was unanimously chosen for the 1919 meeting; the report follows:

REPORT OF THE COMMITTEE ON TIME AND PLACE.

Your Committee on Time and Place begs to report that four cities have tendered invitations to the Association to meet with them in 1919—Asbury Park, N. J., Buffalo, N. Y., Columbus, Ohio, and New York City. The Asbury Park invitation is signed by the Director of Publicity of the Board of Commissioners. The Buffalo invitation comes from the President of the Chamber of Commerce and from the Mayor. The Columbus invitation bears the signature of the Manager of the Convention and Publicity Association. The New York City invitation comes from The Merchants' Association of New York and from the New York Branch of the American Pharmaceutical Association.

It would seem the part of wisdom to hold the meeting next year at a point easy of access to the largest portion of our membership. Particularly will this be the case if conditions of to-day prevail at that time. The Committee is of one mind in recommending that you accept the invitation of the New York Branch and hold the 1919 meeting in New York City, the time to be determined upon by the Council.

T. J. BRADLEY,
S. L. HILTON,
EDW. SPEASE,
CLYDE M. SNOW, *Chairman*.

Chairman L. F. Kebler reported verbally for the Committee on the U. S. Pharmacopoeia. This report is to be presented in writing and was referred for publication.

Owing to the decease of Chairman A. B. Husted there was no report from the Committee on Closer Affiliation of Pharmacists and Physicians.

The Committee on Organization of Local Branches made no report. The report of the Delegates to the National Wholesale Druggists' Association was read and referred for publication. (To be printed.)

S. L. Hilton called attention to the vacancy in the Council, caused by the death of President Charles Holzhauser and nominated President A. R. L. Dohme.

The nomination was seconded by William Mansfield. There were no further nominations and Secretary Day called for a vote whereby the nominee was unanimously elected. President Dohme thanked the members for this expression of their confidence. The Second General Session was then adjourned.

(The transcript of the Third General Session has not come into the hands of the Editor. It will be printed in the October number of the JOURNAL.)

FEDERATED PHARMACEUTICAL ASSOCIATION, A. Ph. A.*

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| House of Delegates elected by the State Pharmaceutical Associations, each of which is to be represented in the House by three delegates | National Drug Conference elected by the several National Drug Associations | Executive Council |
| | N. A. R. D., 3 members | President House of Delegates |
| | N. W. D. A., 3 members | President National Drug Conference |
| | A. D. M. A., 3 members | Executive Secretary |
| | N. A. B. P., 3 members | |
| | A. C. of P. F., 3 members | |
| | A. A. of Ph. C., 3 members | |
| | P. A. of A., 3 members | |
| | U. S. Government, 3 members | |
| | A. Ph. A. delegates-at-large, 3 members | |

House of Delegates is to consider all the business coming before the federated association and to be made up of three delegates duly elected by each State Pharmaceutical Association in this country, the delegates must be members of the federated association or A. Ph. A., which includes membership in the State Association. The House of Delegates is to be attended also by individual members of the federated association, who are not members of any State Association or are not delegates, but although they may discuss the questions before that house, they shall have no vote, only duly appointed delegates possessing this privilege. The House of Delegates shall elect its own officers, who shall be the officers of the federated association or A. Ph. A., and shall consist of a president, three vice-presidents, secretary and treasurer.

National Drug Conference is to consider such business as shall come before it from the House of Delegates or from its own members, which shall consist of three delegates duly appointed by each national association and the U. S. Government constituting it. It shall determine the qualification of its own members and its actions shall not be subject to review by any other agency. The Government delegates shall be one each from the Departments of the Treasury, Navy and Army. The A. Ph. A. should name three delegates-at-large to represent it in the Conference. If later the federated association becomes the A. Ph. A. then these delegates should be discontinued.

Executive Council.—This is the executive committee of the Association and shall consist of the President of the House of Delegates, the President of the Conference and an executive secretary duly elected by the Conference, who shall also be secretary of the Conference. He shall be paid a good salary and shall devote all his time to his work, which shall be done at the central offices of the Association, located at Washington or Chicago, where shall also be located the laboratories of the Association.

Service.—There shall be instituted a series of services for the members of the Federated Association which shall be carried on in the offices and laboratories of the same under the direction of the Executive Council, who shall also have control of the funds of the Association and its publications. These services shall consist of:

* Presenting Ex-President A. R. L. Dohme's views and based upon conclusions reached at the Chicago meeting, A. Ph. A.

- a* Bureau of Chemistry and Pharmacy—where tests and assays of any products or substances shall be made for any member and an opinion given upon their compliance with laws if the member for whom it is done so desires.
- b* Bureau of Laws and Accounting—where legal advice, trade marks, patents, costs systems and analysis, etc., shall be available for members.
- c* Bureau of Exchange of Unsalable Goods—where members may exchange their unsalable goods for salable goods and thus reduce their overhead expenses. This might be extended later to a stock of rarer and costlier items not usually carried by pharmacists but available in an emergency to members.
- d* Bureau of Employment—where records should be kept of employees and employers, as well as employers could apply to secure assistance and be brought together.
- e* Bureau of Publicity—where under direction of a competent publicity man the central offices shall enter upon a systematic campaign of publicity in the public press and magazines of the entire country so as to make known to the public and our legislators the real value and services of the pharmacists of the United States.

Membership.—Membership in the federated association should be made Five Dollars, which would also include membership in the State Association, and in the Conference. Each national association should remit to the federated association this amount of five dollars for each of its members. In return for this each member is to receive the services of the Association and its publications. It is estimated that there are 28,000 members of state associations to which should be added the possible 7,500 members that would result from remittance dues from national associations. From both there should result about 25,000 members, which would give the association an income that would enable it to give service and publications to its members that would more than justify membership in it and through federation give pharmacy a weight and influence which would be helpful in legislation and publicity in many ways.

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON FEDERATION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

In accordance with a recommendation made last year in the address of President F. J. Wulling, and approved at a general session of the Association, President Dohme on January 22nd appointed the following as members of a Committee on Federation: H. V. Army, C. E. Caspari, C. H. LaWall, W. A. Hoyer, F. J. Wulling, J. H. Beal, J. U. Lloyd, S. C. Henry, A. R. L. Dohme, and W. B. Day.

The Committee was immediately organized by correspondence and since then four bulletins have been issued in which the basic principles of the federation of American pharmaceutical bodies were discussed. During the same time, largely through the energetic efforts of President Dohme, other National and State pharmaceutical organizations became interested in the plan of federation.

The discussion by correspondence showed that a satisfactory solution of the problems before us could be secured only by meeting of the Committee, alone and with representatives of other organizations likely to be included in the plan of federation.

Such meeting was held in Chicago on August 10th, on the morning of which day eight of the ten members of the Committee met and informally discussed federation and passed a motion reaffirming the principles of federation enunciated in the address of President Wulling last year.

In the afternoon, a conference, at which the Committee met with the representatives of National drug bodies, brought the results outlined hereafter. At this conference, H. V. Army presided, while W. B. Day acted as secretary, and on roll call the following delegates were found to be present:

From the National Association of Boards of Pharmacy: H. C. Christensen.

From the American Conference of Pharmaceutical Faculties: T. J. Bradley, R. A. Lyman and Edward Kremers.

From the American Drug Manufacturers' Association: C. J. Lynn, R. C. Stofer and C. M. Woodruff.

From the Proprietary Association of America: F. A. Blair, E. F. Kemp and Z. O. Patten.

From the National Association of Retail Druggists: W. H. Cousins and S. C. Henry.

From the American Association of Pharmaceutical Chemists: C. H. Searles and W. S. Burdick.

From the American Pharmaceutical Association (Federation Committee): H. V. Army, C. E. Caspari, C. H. LaWall, F. J. Wulling, J. H. Beal, J. U. Lloyd, A. R. L. Dohme, S. C. Henry and W. B. Day.

In addition to the foregoing delegates, H. M. Whelpley, H. P. Hynson and M. A. Mandabach were present, as guests, and were given the privilege of the floor.

The National Wholesale Druggists' Association selected a delegation consisting of J. W. Morrisson, Francis Keeling, Jr., and Paul Schuh, none of whom were present at the conference.

After a general discussion of federation, the following resolution was submitted by C. J. Lynn:

WHEREAS, The experience of the last fifty years and more has demonstrated that one national organization has not adequately cared for the various interests of the several branches of American Pharmacy, which experience is the underlying reason for the organization of the several independent national associations now existing, which have heretofore most effectively represented their respective interests; and

WHEREAS, Many of the delegates here present are without power to bind their respective organizations to any plan of federation; therefore be it

Resolved, That it is the sense of this informal meeting that a merger of such organizations in a larger federation at this time is not practical; and be it further

Resolved, That having in the National Drug Trade Conference, an organization which has already accomplished much good for the common interests of the several associations here represented, it should be the aim and purpose of these bodies to further develop the conference so that it may be still more efficient in promoting the general welfare of scientific and commercial pharmacy, in which we are all concerned.

That resolution was put to a vote and was approved, Messrs. Wulling, Dohme, Caspari and Lyman asking to be recorded as voting against it.

There was then passed a motion that a conference of delegates from organizations invited to the 1918 meeting, be held on the Saturday prior to the 1919 meeting of the American Pharmaceutical Association, and that a committee consisting of one representative from each National drug body be chosen as a committee on arrangements for the 1919 conference. This motion carried and the chair selected the following Committee: J. W. Morrisson (N. W. D. A.), H. C. Christensen (N. A. B. P.), T. J. Bradley (A. C. P. F.), C. J. Lynn (A. D. M. A.), F. A. Blair (P. A. A.), W. H. Cousins (N. A. R. D.), C. H. Searle (A. A. P. C.), and H. V. Army (A. Ph. A.)

On Monday, August 12th, the Federation Committee met again for a final discussion of the problems entrusted to it, notably those questions relating to the House of Delegates and the federation of State pharmaceutical associations, that is being accomplished through the work of the House.

At this meeting the following recommendations were adopted and are transmitted to the House and to the General Session of the Association for final action.

1. *Resolved*, That it is the sense of the Federation Committee that the By-laws of the House of Delegates should be so amended that all delegates to the House shall be members of the A. Ph. A. at the time they serve.

2. *Resolved*, That it is the sense of the Federation Committee that the continuation and strengthening of the House of Delegates and the active exercise of its functions present a great opportunity for the furtherance of the federation of pharmaceutical organizations for the better coordination of the efforts of such organizations in national and State affairs and for the proper development and evolution of pharmacy.

A third resolution (given hereafter) is based upon the fact that last year Chairman J. H. Beal, of the House of Delegates, proposed five additions to the functions of the House, as follows:

(A) Transfer the reception of fraternal delegates from other pharmaceutical and allied organizations or from departments of the United States Government from the General Sessions to the sessions of the House of Delegates.

(B) Abolish the Committee on Resolutions provided for in Articles I and IX, Chapter X, of the By-laws and transfer its functions to a similar committee of the House of Delegates.

(C) Instruct the Committees on the United States Pharmacopoeia and on the National Formulary to report to The House of Delegates in addition to the reports which they present elsewhere.

(D) Make it the duty of the Committee on Patents and Trade-marks to report to the House of Delegates as well as to the General Sessions.

(E) Transfer the reports of The Commission on Proprietary Medicines (except upon financial matters and upon the election of members) from the Council to The House of Delegates.

The first of the above recommendations was adopted at the Third General Session of The Association last year; the second recommendation was referred to the Committee on Constitution and By-laws, which has not yet reported thereon; the third, fourth and fifth recommendations were laid on the table.

Your Federation Committee gave this matter its careful attention, and believing that all of the five recommendations are of vital importance to the development of the House of Delegates, submits the following:

3. *Resolved*, That the recommendations made last year by Chairman Beal, of the House, should be adopted.

A final recommendation made by your Committee is:

4. *Resolved*, That the Committee on Federation be continued for another year.

In conclusion, your Committee begs, in summarizing its work, to say that as in all great undertakings, the work accomplished by it during the past year is not as great as was desired by some of its members. It has, however, made one great step toward federation by starting a movement toward the enlargement of the scope of the Drug Trade Conference, by which it is hoped that a broad federation of national drug organizations will be secured. It will make another advance if the plan of federation of State associations in the House of Delegates is strengthened by the adoption of the resolutions submitted above. These two basic purposes accomplished, the Conference and the House will be as two piers of a great bridge and when as years go on there is completed between the two a connecting span in the shape of service features so vitally needed by American pharmacy, the federation idea will then be a realized dream.

REPORT OF THE COMMITTEE ON THE STATUS OF PHARMACISTS IN THE GOVERNMENT SERVICE.

To the President and Members of the American Pharmaceutical Association:

Your Committee on the Status of Pharmacists in the Government Service has confined its efforts of the past year to obtain Congressional legislation for the establishment of a Pharmaceutical Corps in the U. S. Army. We believed it was our duty to concentrate our work on a single proposition, that contemplated a real war service for the men fighting for the country, by placing the dispensing of medicines in the hands of trained pharmacists, instead of, as at present, largely in those untrained. The enactment of such a measure would also advance the professional standing of pharmacy.

The results I am able to report are far from satisfactory, but the outlook is not hopeless. I believe that we have a fighting chance—but we must fight and fight continuously.

From the outset, your Committee recognized that the work before it was difficult and the progress must be slow, especially in view of the opposition of the Surgeon General. We,

however, succeeded in securing a hearing on March 19, 1918, before the Committee on Military Affairs, and, we believe, corrected many wrong impressions in the minds of the members of the Committee. The report of the hearing on H. R. 5531 has been generally distributed and widely read.

We deemed it advisable to learn the actual conditions existing with reference to the dispensing of medicines in the Army camps, so that we could present the facts at the proper time. We prepared a questionnaire and forwarded same through the office of the JOURNAL to the secretaries of the Boards of Pharmacy, requesting them to obtain, at first hand, the desired information. Responses were quite promptly received from twenty-six states and presented conditions that were as we anticipated, namely, the dispensing of medicines was often done by others than graduate pharmacists and sometimes those who had been bartenders, salesmen, bookkeepers and others, without any knowledge of drugs, were in charge of dispensaries, while pharmacists under them as privates could do no dispensing except under the direction of such non-commissioned officers. All of the data obtained were tabulated and presented to the Committee on Military Affairs, and became part of the record.

With the assistance of Congressman Edmonds, the National Pharmaceutical Service Association, as well as your Chairman, used every reasonable means to obtain a hearing on the Edmonds bill before the Committee on Military Affairs. Important matters pertaining to the Army, and the Army Appropriation Bill, occupied the undivided attention of the Committee until the middle of March, when a date was set and the hearing held March 19, 1918.

The National Pharmaceutical Service Association sent out a call for a conference to be held at Baltimore the day prior to the hearing. Fifty-one delegates were present, representing nearly one hundred colleges, national associations, State and local associations, and the afternoon was devoted to discussing plans for the presentation of our case at the hearing before the Committee on the following day.

Your chairman was called upon to preside, and Mr. R. P. Fischelis was elected secretary. After a general discussion it was decided that a committee be appointed to select the speakers to present arguments to the Committee on Military Affairs. After careful deliberation, the following gentlemen were selected: Prof. F. J. Wulling, the main speaker, was to cover the entire subject in a concise form. If time permitted, the following gentlemen would discuss the following special topics: Dr. J. Madison Taylor, "The Need of a Pharmaceutical Corps in the U. S. Army, from a Medical Point of View." E. G. Eberle, "The Need of the Same Protection as far as Pharmaceutical Service Is Concerned in the Army, as Provided by State Laws in Civil Life." Caswell A. Mayo, "Pharmaceutical Army Corps in Foreign Countries." S. C. Henry, "What the Edmonds Bill Is and What It Stands For." Prof. Charles Caspari, "What Pharmacy Has Done in the Compilation of Standards for Drugs and Medicines." W. L. Crounse, representing the National Wholesale Druggists' Association, "A Refutation of the Charge Made that Manufacturing Pharmacists Objected to the Formation of a Pharmaceutical Corps in the U. S. Army."

All branches of pharmacy were represented at the conference and the hearing of next day. The conference was exceedingly harmonious, every one present being desirous to do his bit. The following day we met at the office of Mr. Edmonds; additional delegates who were unable to attend the meeting of the previous day were present, so that about seventy to seventy-five delegates attended the hearing.

Mr. Edmonds opened the hearing with a brief statement and introduced the speakers. The program was fully carried out, much interest being shown and many questions asked by members of the Committee. It was the opinion of those present that a very favorable impression was made on the Committee. The Committee, however, has done nothing with respect to considering or reporting its conclusions and from what I am able to learn the bill may not be further considered or reported at this session. Mr. Edmonds has asked that a hearing be granted him and other members of Congress that have committed themselves to this legislation: as yet, no time has been set by the Committee and there is some doubt if they will be heard at this session of Congress. It is evident, if anything is to be accomplished, that the opposition of the Surgeon General must be overcome. How this can be consummated is problematic and difficult to predict at this time. Surgeon General Gorgas retires this Fall; who his successor will be and what his attitude is can not be predicted. We feel that now is the time when all drug industries must coöperate in a united endeavor in support of this measure. The future of pharmacy largely

depends upon taking this step. The medical, dental and chemical professions are listened to and usually obtain what they desire. This is best illustrated by the formation of the Chemical Warfare Service, by executive order, and similar action could have been had for pharmacy, at least for the period of the war, if the pharmaceutical profession had been fully and as well organized as the other professions.

Close contact with men of authority in the medical departments usually elicits the information that the pharmacists are not wanted, they know too much, that they want men without pharmaceutical training, so that they can train them as they desire. The younger men in the medical service want the pharmacists, but they have not the power to overcome the opposition and, as a result, our soldiers are not getting the best pharmaceutical service obtainable and thousands of trained pharmacists are working in the trenches and along other lines different from those they are best fitted for by training and education. This lack of coordination is not only detrimental to the Army but is wasteful of an important and national asset.

In closing, we want to urge that the American Pharmaceutical Association take the initiative and call on all drug organizations to take an active part and to use its utmost endeavor to convince the Surgeon General and Secretary of War of the urgent necessity for establishing a Pharmaceutical Corps, thereby eliminating the necessity for the large number of physicians that is now being called for and which will, beyond all question of doubt, work a hardship on those remaining at home and, that the men in the Army will get better pharmaceutical service than they are receiving at present.

We urge that every member of these pharmaceutical associations work with their Congressmen, pointing out the conditions now existing, show the necessity for such a Corps and demand legislation providing for a Pharmaceutical Corps along the lines that have been worked out and proven most satisfactory in foreign armies.

Respectfully submitted,

S. L. HILTON, *Chairman.*

SUPPLEMENTARY REMARKS BY CHAIRMAN S. L. HILTON.

S. L. HILTON: I want to make a few remarks supplementing my report as chairman. I listened to an able paper by Dr. F. W. Shepardson, of the Education Department of the State of Illinois, before the Section on Education and Legislation to-day. He contended that the Department recognized the situation in the drug business, that the commercial element far exceeds the educational or professional. He inferred that this had much to do with the difficulties in securing recognition for pharmacy by the establishment of a Pharmaceutical Corps in the U. S. Army. Doctor Shepardson is right. He presents the attitude of the Government correctly and the conditions in the drug business have made it difficult to impress the desires of those working for the establishment of a Pharmaceutical Corps, that we are not demanding a commission for every corner druggist, but contending for a Pharmaceutical Corps to be composed of trained pharmacists, and every one acquainted with American pharmacy knows that we have them. If others want to enlist that is their privilege, and if by study and perseverance they attain to the proper standard and pass the provided examination, they should have the opportunity. But the proposal is for the admission and advancement of educated pharmacists.

The idea is quite general, and also with Government officials, that all licensed pharmacists, regardless of qualification, should be commissioned in such a corps. Congressmen have expressed themselves that they would favor the bill for a pharmaceutical corps provided every licensed pharmacist would be entitled to a commission.

That is not what we are working for nor endeavoring to secure legislation for. If that is the object then we had better stop our efforts right now—the aim is to have a Pharmaceutical Corps composed of men qualified in pharmacy by education and training, men who are competent to render pharmaceutical service.

The statements made by Mr. Hilton received the unanimous support of the convention.

REPORT OF COMMITTEE ON QUALITY OF MEDICINAL PRODUCTS.
AMERICAN PHARMACEUTICAL ASSOCIATION.*

The report of this Committee embraces a condensed statement of the quality of such finished medicinal products made by manufacturing and retail pharmacists and of the various ingredients and materials used, that have been brought to our attention during the current Association year.

When we consider that a slight variation from standard and an unconscious error in the wording of a label are tabulated as infringements of law, it is surprising that the record is as favorable as it is. Individual opinion seems to dictate standards in many cases of complaint for improper wording of labels. There is little wilful effort to substitute, yet the continued high range of prices offers a temptation that a few are unable to resist. Many reported instances are the result of carelessness rather than purpose. One State Board reports 27% of 371 samples adulterated; 18% consisted of deteriorated spirit of nitrous ether, 7% of camphorated oil deficient in camphor and 2% of spirit of anise, spirit of peppermint and tincture of iodine below standard. Of 1685 samples 20% were defective and consisted principally of the above-named products.

In the case of the spirit of anise, spirit of peppermint and liniment of camphor, their being sub-standard is the result of negligence, while the spirit of nitrous ether may have been carefully made but carelessly stored. Prof. Herman C. Lythgoe, Director and Analyst of the Massachusetts State Board of Health, has published a chart showing the comparative permanence of this product stored in full bottles in a cool place and the very rapid impairment stored in flint bottles exposed to sunlight. In the latter case the product was entirely worthless after the lapse of 82 days. Dr. Hodgson, in the *Pharmaceutical Journal* shows entire decomposition in 15 days stored in an open bottle, while the same product in a full, well-stoppered bottle lost only 4% in one month and about 30% in 3 months.

The condition of the market has led to the suggestion of numerous substitutes to favor conservation and reduce cost. Glucose and mucilage of chondrus have been recommended as substitutes for syrup and glycerin. Neither of these substitutes will represent the sweetness of syrup without the addition of saccharin; both are more subject to decomposition. The extensive advertising of glycerin substitutes that are nothing but invert sugar syrups is misleading. They are substitutes only in gravity and freedom from crystallization, but are entirely devoid of the solvent and preservative action of glycerin.

Many substitutes for *Adeps lanae* have been suggested, but none of them have the same composition as the original, nor the same essential value even though they may resemble the physical characteristics.

The condition of the sugar market has led to active use of saccharin. Pronounced harmless by many unquestioned authorities, and condemned by others, legally used in some states and illegally in others, pronounced of decided advantage in preventing stomach and intestinal fermentation, there seems to be no good reason why it cannot be used except where the food value and preservative action of sugar is required. Even at the market value of \$23.00 per pound it is a cheaper sweetener than sugar. In Germany, laws forbidding the use of artificial sweetening substances, have been repealed. Saccharin and a new product dulcin, or sucrol, paraphenetolcarbamide, are largely used. Dulcin is 200 times as sweet as sugar and does not have the bitter after-taste of saccharin.

The offering of fictitious styrax at a price twenty times the former cost of the original genuine, now out of the market, has led to the questioning of its value and tincture of benzoin compound, substituting an equivalent of balsam of tolu for the styrax, is being used by several hospitals with perfect satisfaction.

The growth of some narcotic drugs in the United States that were formerly entirely imported, has served to somewhat reduce their price and to furnish products of exceptional value. There is still dispute about some such drugs. American cannabis is pronounced by some equal to, if not superior, to the foreign, while others consider it far inferior. While there is undoubtedly difference in quality in different lots of American grown, the wide range published may be due in part to the variation in results obtained by physiological tests of the same sample. The following reports were obtained from physiological tests of the same drug, the reports being submitted by three experts.

*Presented at Chicago meeting, A. Ph. A., 1918.

Report No. 1, using 7 times the U. S. P. quantity of drug: Three dogs had slight incoördination; three had considerable incoördination.

Report No. 2, using 4 times the U. S. P. quantity: All six dogs had slight incoördination.

Report No. 3, using the U. S. P. quantity: 0.03 mil of fluidextract of cannabis per kilo weight of dog.

Dog No. 1, considerable incoördination.

Dog No. 4, no incoördination.

Dog No. 2, drowsy, lays down, no incoördination

Dog No. 5, no incoördination.

Dog No. 3, drowsy, very slight, no incoördination.

Dog No. 6, drowsy, slight, incoördination.

Dog No. 7, slight incoördination.

Report No. 3, using 0.04 mil of fluidextract of cannabis per kilo weight of dog:

Dog No. 1, marked incoördination.

Dog No. 5, incoördination.

Dog No. 2, drowsy, slight incoördination.

Dog No. 6, marked incoördination.

Dog No. 3, considerable incoördination.

Dog No. 7, marked incoördination.

Dog No. 4, shivers, considerable incoördination.

Drug is 80% of U. S. P. strength.

Report No. 4, using 0.03 mil of fluidextract:

Dog No. 1, no ataxia.

Using 0.05 mil, possibly faint ataxia.

Dog No. 2, no ataxia.

Using 0.06 mil, very fair ataxia.

Dog No. 3, used control Cannabis, questionable ataxia.

Using 0.05 mil, slight ataxia.

Using 0.04 mil, no ataxia.

Using 0.05 mil, slight ataxia.

Using 0.05 mil, no ataxia.

Using 0.03 mil of control. Very good ataxia.

Drug is 60% of U. S. P. strength.

Variation in some products is due to variation in method of manufacture. Syrup of tolu is frequently made from "Soluble Tolu" furnished by the manufacturer and these vary much in character. The U. S. P. calls for 50 mils tincture of tolu, representing 10 Gm. of balsam in 1000 mils of syrup. Triturating the tincture with magnesium carbonate and water and evaporating gives 2.144 Gm. of residue, equivalent to 0.2144 Gm. in 100 mils of syrup.

Manufacturer No. 1, Soluble Tolu: Alcohol 20%, residue 0.17%. Formula: 1 1/4 fluid-ounces to 15 ounces of syrup gives a syrup containing about 0.013 Gm. balsam, or one-sixteenth of the U. S. P. strength. Original product was acid in reaction; 10 mils required 1.54 mils N/10 KOH.

Manufacturer No. 2, Soluble Tolu: Alcohol 25%, residue 2.58%. Formula same as No. 1, gives a syrup containing about 0.2 Gm. balsam, or about 93% of U. S. P. strength. Original product was alkaline; 10 mils required 2.0 mils N/10 H₂SO₄.

Manufacturer No. 3, Alcohol 25%, residue 1.2%. Formula: Twenty mils of product and 80 mils of syrup give a syrup about 1 1/8 times the U. S. P. strength. Original product was alkaline; 10 mils required 2.8 mils N/10 H₂SO₄.

Manufacturer No. 4, Alcohol 25%, residue 1.6%. Formula: Twenty mils of the product and 80 mils of syrup give a syrup about 1 1/2 times the U. S. P. strength. Original product was alkaline; 10 mils required 2.8 mils N/10 H₂SO₄. These comparisons are of no value unless the residue is determined to come from tolu only.

Scarcity of labor has rapidly advanced the prices of most of our native botanicals and led to carelessness in maintaining the standard of excellence. Wild cherry bark has been mixed with black cherry bark; white pine bark marketed entire instead of inner bark only, excess of stems and fibers are left attached to roots.

Licorice root has advanced to eight times its former cost and much inferior quality has been offered. Some bales contained a notable quantity of stems. One sample of powder was not licorice root. It contained only 8.3% soluble matter of foreign taste and 3.5% ash. It is said that imports from Asia derived from *Glycyrrhiza uralensis* Fischer, an unofficial species, have been frequent. The quality of root is good but comes mixed with a considerable quantity

of stems. It contains about the same amount of glycyrrhizic acid as the Spanish and Russian varieties.

The presence of glycerin in some chemical syrups and some tannin bearing fluid extracts should be retained and it should be dropped from preparations where it is valueless and merely adds to the cost, as fluidextracts of dandelion, hydrastis, tincture of gentian compound, etc. In aromatic fluidextract of cascara its mild laxative action may be of some service, but not proportionate to its high cost and it could well be replaced by syrup. It has been stated that glycerin is obtained by a new process from black strap molasses, 470 gallons yielding 506 pounds of glycerin and 145 gallons of absolute alcohol. Signed, E. L. PATCH.

The disarrangement of the collection of foreign drugs, due to the European war and the consequent disturbances in the collection of home drugs, and in the drug market is still in evidence. Almost every wild plant that grows is being gathered and submitted for inspection with the hope that it will prove to be *Hydrastis* or some one of the few drugs that under existing conditions are bringing and will bring for a limited period, a fancy price. Many have made large collections of non-medicinal plants before ascertaining the identity of the plant gathered and as a natural consequence, have had their trouble for their pains as well as in those cases where help was hired and paid for sustaining an actual money loss. Needless to say that these non-medicinal plants, gathered for the drug market, have not found their way into trade channels.

There is a tendency among collectors towards profiteering, as is shown by the gathering of those parts of plants not desirable. Examples are the presence of root leaves, stem bases and rootlets on rhizomes and roots which should be gathered free of these parts such as star grass, culvers root, trillium, etc.; the herb, whole or out for leaves, as in catnip, tansy, worm-wood, etc.; inflorescences in place of flowers, etc. This tendency should be rigidly guarded against and strenuously combatted. Signed, O. A. FARWELL.

ABSINTHIUM: Various species of *Artemisia* that have the leaves white woolly on both sides are gathered in quantities and offered as Wormwood. O. A. FARWELL.

ACID BENZOIC: Several shipments offered for entry containing as high as 30% of powdered boric acid. *Spatula*. One lot not perfectly white, a heavy powder, contained a brown substance insoluble in ether; ignited left no residue. E. L. PATCH.

ACID HYDROCYANIC, DILUTE: One shipment assaying only 1.75% of absolute acid was rejected. H. ENGELHARDT.

ACID OLEIC, PURIFIED: It seems to be rather difficult to get U. S. P. acid. A number of shipments we received had a high congealing point, showing the presence of an undue amount of solid fatty acids and some contained unsaponified fats. H. ENGELHARDT.

ACONITE LEAF: Aconite leaves seem to be a rarity. The leaf has given place to the herb in either the flowering or fruiting stage. O. A. FARWELL.

ACONITE ROOT: Two samples were of good quality. H. ENGELHARDT.

The tuber that is now on the market may be topped by as much as four inches of stem base. The smaller, plumper, lighter colored Japanese root is often inter-mixed.

O. A. FARWELL.

Japanese Aconite, *Aconitum fisheri* Reich, has been substituted for the official *Aconitum napellus* L. It does not contain aconitine, but other alkaloids and should not be used in any preparations of the U. S. P. Japanese aconite usually consists of mother tubers with stem bases and daughter tubers with buds. They are smaller in size, lighter, smoother, less wrinkled and not twisted, generally more mealy (due to starch) and have a different arrangement of the fibro-vascular bundles, not so markedly star shaped. DEPARTMENT OF AGRICULTURE.

ALCOHOL: Two barrels of Cologne Spirit yellowed with KOH solution and turned brown rapidly with silver nitrate and were slightly deficient in strength. E. L. PATCH.

ALUM, DRIED: One lot was a mixture of potassium and ammonium alums, contained 6% of water (U. S. P. allows 10%), entirely soluble in hot water. One lot contained 15% of water and 1.5% insoluble in water. E. L. PATCH.

AMERICAN HEMP: No. 1 gave 3.6% ether-soluble resin. No. 2, 15.9%. No. 3, 9%. No. 4, 14.2%. No. 5, 14.2%. No. 6, 7.8%. E. L. PATCH.

Sample contained 11.5% of seeds; gave 15.3% of oleoresin. Physiologically tested: Normal doses *per os* and by intravenous injection, well-marked symptoms within one hour and a second injection rapidly killed the animal by cardio-inhibition. I am of the opinion that the

sample is a physiologically active product which is indistinguishable from the ordinary *Cannabis Indica*.

ERNEST J. LARRY, London, Eng.

APOMORPHINE: The amorphous variety was offered and was rejected because it is a well-known fact that this modification produces physiological effects other than those produced by the crystalline variety and besides is considerably more toxic. H. ENGELHARDT.

ANTISEPTIC CORROSIVE TABLETS U. S. P.: Assayed 46.315% corrosive sublimate and 53.685% sodium chloride. It is difficult to maintain a uniform mixture of 50% of each. Second lot assayed 50.05% corrosive sublimate and 50.03% sodium chloride.

E. L. PATCH.

ARNICA FLOWERS: *Inula britannica* L. has been mixed with and substituted for arnica flowers. The ray flowers are smaller in length and width than those of true arnica. The veins number four, while those of true arnica are seven to twelve. The receptacle is smooth instead of hairy as in true arnica.

DEPARTMENT OF FOOD AND DRUGS.

ASAFOETIDA: Of four samples we rejected one yielding only 26% alcohol-soluble matter and leaving 30% of ash on incineration.

H. ENGELHARDT.

ASPIDOSPERMA: The official drug has come to be a rarity. The red quebracho has been substituted for it as well as some other unknown bark which bears a more or less close resemblance to the outer portion only of the official bark.

O. A. FARWELL.

ASPIRIN: A spurious product has been found in nearly all large centers of Texas.

Pharm. Era.

BARIUM DIOXIDE: Assay 86.4% BaO₂, traces of chloride and nitrate.

E. L. PATCH.

BEEF EXTRACT: Protein contents vary; 34.82%, 50.5%, 50%, 45.18%, 53.42%, 52.72%; salt from 3.65% to 8%.

E. L. PATCH.

BEEFWAX: Of fifteen samples of white wax only one was adulterated. This adulteration was white lead.

K. F. EHMANN.

BELLADONNA LEAF: Sample sold for 0.690 assayed 0.389; other lots 0.390, 0.497, 0.720, 0.425.

E. L. PATCH.

Since this drug has become scarce, the common nightshade, *Solanum nigrum* L., has been gathered in all sections of the country and offered in large quantities for belladonna.

O. A. FARWELL.

We examined 23 shipments of which only two had to be rejected on account of being below the U. S. P. standard. The quality of this drug which was cultivated in this country was very good; one lot assayed as high as 1.1% of total mydriatic alkaloids. One shipment was received which was marked as "belladonna herb," but did not contain any alkaloids; it was derived from a solanaceous plant.

H. ENGELHARDT.

Examination of samples of importations of "belladonna leaves" has disclosed that *Solanum nigrum* L. has been substituted in some instances for the true material. Since this species contains alkaloids other than those present in genuine belladonna, it should be excluded.

DEPARTMENT AGRICULTURE.

BELLADONNA ROOT: Belladonna root seems to be unobtainable; two shipments were of good quality.

H. ENGELHARDT.

Examination of samples of importations has disclosed that the roots of yellow dock, *Rumex crispus* L. were substituted in one instance for the true material. The yellow dock roots are externally reddish brown, deeply longitudinally wrinkled, finely annulate above and have a somewhat fibrous fracture, whereas those of *Atropa belladonna* are externally pale brownish gray, show only weak longitudinal wrinkles and have a nearly smooth fracture.

DEPARTMENT OF AGRICULTURE.

BETANAPHTHOL: One lot was dark colored, rank in odor and not completely soluble in ammonia water.

E. L. PATCH.

BISMUTH SUBNITRATE: Two hundred pounds of precipitated chalk was fraudulently sold in packages labeled "Merck's Bismuth Subnitrate." Another lot bore the labels of "Mallinckrodt Chemical Company." Detectives are looking for the seller.

Pharmaceutical Record.

BLUE FLAG: The rootlets often are not removed. In addition it is frequently and sometimes largely intermixed with a rhizome similar in all respects to the official except in color,

which is white. Whether it is merely a color phase, or the rhizome of a different species has not been proven.

O. A. FARWELL.

BORAGE: The leaves and even the inflorescence of an allied plant, the Bugloss (*Echium vulgare* L.) have found their way to the drug markets for borage.

The former are rougher and more densely pubescent and the hairs lack the broad disk-like base of the hairs of true borage. The flowers of the Bugloss are bilabiate while those of Borage are regular and rotate.

O. A. FARWELL.

BUCHU: Attention is called to the fact that samples labeled as "long," "short" and "oval" buchu leaves offered in the trade have been found to be obtained from species not official in the U. S. P. The "long buchu" proved to be *Empleurum serratulum*, the "short buchu" *Barosma pulchellum*, and the "oval buchu" *Barosma crenulata*, var. *latifolia*. The flavor of the three adulterants is markedly different from that of the official species. They should not be used in official preparations.

DEPARTMENT OF AGRICULTURE.

BURDOCK ROOT: Large quantities of the root of the second year plant are put upon the market; the root at this stage is very woody and useless.

O. A. FARWELL.

BUTTERNUT: This drug frequently is the source of much trouble because of the heavy cork on the unpeeled root and of the bark of the larger branches which are used as adulterants.

O. A. FARWELL.

CALCIUM GLYCEROPHOSPHATE: A few small shipments contained too large an excess of chloride.

H. ENGELHARDT.

CAMPHORATED OIL: Fifty-two samples deficient in camphor. Massachusetts State Board. Estimated by heat, 18.1%, 18.85%, 20.1%, 13.25%. U. S. P. 20%.

E. L. PATCH.

CANNABIS INDICA: A very perceptible change is noticeable in this commodity. The percentage of matured seeds in the drug imported from India has greatly increased, probably in many instances beyond the maximum amount allowed by the U. S. P. The drug from the American plant does not answer the pharmacopoeial requirements at all since in most instances it consists of all those parts of the plant in fruiting stage, which cannot be used for the production of hemp. Even the male plant has been gathered and stored for medicinal purposes. The relative values of the crude drug originating in different countries, is still in the debatable stage; the value of the crude drugs may vary according to the time of collection and the part or parts of the plant gathered, but if the preparations made from these variable crude drugs were brought by physiological assay to a uniform standard for the finished product, it is more than probable that this drug as a fertile subject for future discussions of its variableness would immediately drop out of sight.

O. A. FARWELL.

We may say that samples of Indian hemp submitted answered all the physiological tests prescribed by the U. S. P. but the samples of domestic hemp were generally far below the requirements. I do not wish to go into details about the rather unreliable physiological assay process required by the U. S. P., but only want to point out that a great deal can be done towards improving this process. Unless a more reliable method can be proposed the physiological assay of Cannabis should be discarded altogether.

H. ENGELHARDT.

CAPSICUM: Extractive, alcoholic, 15, 21.6, 23.7, 23, 21.5, 25, 23.5, 25.6; ash, 7, 6.98, 6.9

E. L. PATCH.

CARAWAY SEED: Foreign seeds, 1.15% chaff and dirt; freed from above yields, 6.6% ash.

E. L. PATCH.

CASCARA BARK: The adulterant previously mentioned has been identified as the bark of *Prunus padus*.

JOURNAL AMERICAN PHARMACEUTICAL ASSOCIATION.

CHALK PRECIPITATED: Assay 94% (U. S. P. 98%) excess of chlorides, 98.85%, 98.85%, 98.35%.

E. L. PATCH.

CHAMOMILE: Examination of importations of "Chamomile flowers," *Matricaria chamomilla*, L. have disclosed in some instances that the flowers of dog fennel, *Anthemis cotula* L. have been submitted in amounts up to 25%. The flowers of *Matricaria chamomilla* have naked, hollow receptacles, whereas those of *Anthemis cotula* are solid and chaffy.

U. S. DEPARTMENT OF AGRICULTURE.

The flower heads of *Anthemis arvensis*, the field chamomile have been substituted; they are readily distinguished by the persistent chaff and solid receptacle.

O. A. FARWELL.

CHENOPODIUM: *Chenopodium album* has been offered in place of the *C. anthelminticum*. Texas appears to be the source of origin. O. A. FARWELL.

CINCHONA: Lots have been offered for entry under names recognized in the U. S. P., but deficient in alkaloids. DEPARTMENT OF AGRICULTURE.

Four shipments of *Cinchona calisaya* and two of red cinchona answered fully the requirements of the U. S. P. H. ENGELHARDT.

Yellow bark 8.05 total alkaloids; red cinchona 7.25%.

E. L. PATCH.

Many samples from different sources indicating a wide collection, have been received under the name "Cascarilla;" the bark does not resemble any of the official cinchona barks externally. It may be derived from one or more species of the genus cascarilla. It is said that the cascarilla barks do not contain the cinchona alkaloids. O. A. FARWELL.

COLCHICUM ROOT: Colchicum root is practically unobtainable. Four samples examined were of good quality. H. ENGELHARDT.

0.53%, 0.45%, 0.36%, 0.4%, 0.43%, U. S. P. 0.35%.

E. L. PATCH.

CONIUM LEAVES: Parsley leaves have been used as a substitute; also the leaves of *Aethusa cynapium*. O. A. FARWELL.

COD LIVER OIL: One lot very inferior. Refractive index at 17.5° C. 1.4771. Would not stand the fuming nitric acid test. E. L. PATCH.

COD LIVERS: Powdered, 95% volume alcohol extracted 46.85%; 10% volume alcohol extracted 10.3%. Average loss by drying at 100° C. 11.95%. Extract made with 95% volume alcohol is insoluble in 10%, 15% or 20% alcohol. E. L. PATCH.

CUBEBS: It is becoming increasingly difficult to obtain a first class quality of cubebs answering the U. S. P. requirements. The stems present are usually excessive; also the peduncled fruits of other species are in more or less evidence. O. A. FARWELL.

DANDELION ROOT: In some instances roots obtained from *Lactuca canadensis* L., *Lactuca spicata* (Lam.) Hitchc., or other species of lactuca have been substituted. The roots of *Taraxacum officinale*, true dandelion, may be distinguished by the concentrically arranged groups of laticiferous vessels and sieve tubes which alternate with whitish inulin-bearing parenchyma. Lactuca root is characterized by its tracheae which are arranged in radial rows, usually one cell wide, alternating with medullary rays, two or three cells wide.

U. S. DEPARTMENT OF AGRICULTURE.

Samples from importations disclosed the presence of 40% of roots which were badly discolored inside and did not show a porous, pale, yellow wood as required by the U. S. P. The appearance suggested that the material had been improperly dried. This fact was confirmed by microscopic examination, showing swollen brownish yellow masses indicating that inulin masses had been partially hydrolyzed and caramelized. Samples containing more than 15% of such dead roots should be rejected.

U. S. DEPARTMENT OF AGRICULTURE.

DIGITALIS LEAVES: The domestic drug was generally found to be of very good quality. In connection with the physiological test for this drug I may call attention to the article published by Mr. H. C. Colson of this laboratory in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION 1918, page 73. It was found that the twelve-hour frog test is more reliable than the one-hour official test and the cat test is superior to both of them.

H. ENGELHARDT.

Large quantities of *Digitalis thapsi* were imported under the name of "Spanish Digitalis;" but the substitution was quickly detected and its importation prohibited.

O. A. FARWELL.

Recent work has revealed the fact that American digitalis is as potent and valuable medicinally as any heretofore imported from Central Europe. It has been found that the digitalis plant growing wild in Oregon and Washington needs only harvesting and collecting to be of great assistance to war medical work. *Pharmaceutical Era*.

DITTANY: The European or Cretan dittany has been imported and offered as dittany.

O. A. FARWELL.

(To be continued.)

CORRESPONDENCE

UTILIZATION OF INVENTIVE TALENT.

D. W. Brinton, of the U. S. Naval Consulting Board, 15 Park Row, New York City, writes that some of the civilian engineers of this country are now rendering great service to the Government through the agencies of the Council of National Defense, the Naval Consulting Board the National Research Council, and their numerous auxiliary committees, but, unfortunately, only a small proportion of the technical men of this country are so situated that they can go to Washington and engage in this service; therefore, some means of utilizing the patriotism and originative thought of our members had to be devised.

For this purpose the War Committee of Technical Societies has been organized, and it hopes to give the members of the Technical Societies who are obliged to stay at home, an opportunity to use their inventive talent and technical training in the study of the varied problems which arise in the preparation for and prosecution of the war—thus making valuable contributions to the national cause.

The greatest care will be taken to discover and utilize everything of value that may inhere in suggestions and inventions submitted. Not only will they receive studious examination, but when necessary, trials and experiments will be conducted. All inventions which have successfully passed the necessary examinations and tests are turned over to the particular department of the Army and Navy Service, where they may be most profitably utilized.

THE STRONTIUM BROMIDE PRESCRIPTION.

The letter of Dr. S. Solis Cohen, which appears in the August issue, has my attention. I am glad that the doctor has taken the pains to lay his experience before the pharmaceutical profession, for in this way we learn our shortcomings, and are enabled to correct them.

His experience may be regarded as a reflection upon the efficiency of the Board of Pharmacy, which should discover such apparent incompetency in pharmaceutical ranks.

It was at the meeting of the A. Ph. A. in Atlantic City that I listened to an address by Doctor Cohen, in which he led his audience to think that boards of pharmacy seemed to ask questions such as the examinees may not be familiar with. Now, if the type of prescriptions that the doctor has had such inferior pharmaceutical service from, is in the class he had in mind, then the Pennsylvania Board of Pharmacy must plead guilty, because it is one of its hobbies to feature the principles that are involved in dispensing prescriptions of like character, in every examination.

Notwithstanding criticisms to the contrary, the policy of the Board has not been officious nor over-exacting, hence it does not reject an applicant because he is unable to show himself to be 100 percent perfect in all branches.

As presiding officer of said Board I would be glad to have a consensus of opinion of the medical and pharmaceutical profession, as to whether or not a failure on the part of an examinee to properly prepare a prescription as cited by Doctor Cohen should warrant rejection, if his record on all other branches were such as would favor a passing grade.

Yours respectfully,

LOUIS EMANUEL.

P. S.—In the interests of a perfect pharmacopoeia, it may not be improper to ask the doctor why he gets better results from the use of strontium bromide of a special brand, than he does from the chemical of the same title of U. S. P. standard of quality, purity and strength.

LOUIS EMANUEL.

PITTSBURGH, PA., August 21, 1918.

THE EDITOR: Noting Dr. Solis Cohen's communication to the JOURNAL regarding the strontium bromide prescription as well as your reply to it, it seems to me that the very tangible reason for an occasional misinterpretation of the quantity of the bromide lies in the fact that

the specified brand of bromide prescribed (probably the Paraf-Javal) is *more often* prescribed and *better known* in the form of a solution. The wide-awake pharmacist, however, discounting the fact that many careless physicians often fail to indicate on their prescriptions the difference between the fluid and solid measurement symbols, ought to be well enough abreast of the times to know that the careful physician, and Dr. Cohen is well known to be in this class, would write for Liquor Stront. Brom., when this was wanted, and would designate the symbolic quantities accordingly. He should also know that there *is* on the market such a product as strontium bromide (Paraf-Javal). I disagree with you, therefore, when you state in your answer that "the brand of the salt has nothing to do with the case." Were it not for this specification Doctor Cohen would not have experienced any trouble whatever, for I believe with you that the Philadelphia druggist in common with the rest of his professional brothers *does* understand the difference between a fluid and a solid(!) ounce.

Yours cordially,

PHILADELPHIA, August 17, 1918.

IVOR GRIFFITH.

IMPORTANT NOTICE FOR SCHOOLS AND COLLEGES OF PHARMACY.

The action taken at the Indianapolis Meeting relative to the award of the Fairchild Scholarship for this year is expressed in Recommendation No. 5 of President R. A. Lyman's address, and which reads:

"That it be the sense of the Conference that Mr. Fairchild could render the greatest service to pharmacy by offering the scholarship to a graduate pharmacy student, in order that he might pursue some research problem for one full school year, in the school of his choice; and further, that this scholarship be awarded on the basis of the applicant's scholastic training, his standing as an undergraduate pharmaceutical student and upon his fitness to do research."

The Committee to whom the matter of formulating a definite plan for awarding the Fairchild Scholarship was referred consists of H. C. Christensen, Chairman, 4149 Vincennes St., Chicago, Ill., Prof. J. W. Sturmer, 145 N. 10th St., Phila., Dr. George C. Dickman, 115 West 68th St., New York, and Dr. R. A. Lyman, c/o The University of Nebraska, Lincoln, Neb.

The Committee has decided that in making the award:

The ability of the candidate to perform research work be given a value of 50 credit units; the pharmaceutical scholastic record a value of 40 credit units; and the non-pharmaceutical scholastic record (above high school grade) a value of 10 credit units.

Further, that the candidate's ability to perform research work be determined upon evidence of research work previously accomplished, and that such evidence may take the form of a thesis presented at a college of pharmacy, or a paper covering research work carried out at a college, but in the latter case it should be accompanied by a certification from the dean that the paper represents the student's individual work. A published paper covering research work performed by the candidate subsequent to his graduation may also be accepted as evidence—at the discretion of the Committee.

The Committee reports further:

"It is to be clearly understood that this procedure does not necessarily represent the views of the members of this Committee on Examination on the larger problem of the awarding of the Scholarship, but is merely a practical plan decided upon the basis laid down at the Indianapolis meeting last year."

Schools or Colleges of the American Conference of Pharmaceutical Faculties, therefore having a candidate to present for the Fairchild Scholarship, should at once send his credentials, etc., to Chairman H. C. Christensen, 4149 Vincennes St., Chicago, so as to reach him not later than October 1, in order that the award may be made soon thereafter.

The Chairman of the Fairchild Scholarship Committee would also request that the Schools and Colleges give the matter of the Fairchild Scholarship consideration. As the Schools are perhaps most interested it is requested that all Schools present their views in writing to Secretary Theodore

J. Bradley, of the Conference, c/o Massachusetts College of Pharmacy, Boston, Mass., prior to December 1, 1918, with a view to having him lay before the incoming Fairchild Scholarship Committee these expressions, so that this Committee can be assured of having all Schools interested to the fullest extent when they formulate their plans of award for next year, and with the hope these will establish the method of award hereafter.

We thank you for giving both these matters your prompt consideration. The first should have immediate attention.

Respectfully,

The Fairchild Scholarship Committee.

CHANCE IN COLLEGE OR VOCATIONAL SCHOOLS FOR ALL BOYS OF 18.

All of our readers have by this time read of the opportunities that are to be given young men to enter schools or colleges during the first year or longer of their enlistment. Conferences have been held on the matter with school officials and the War Department. What opportunity pharmacy students will have we are not advised, but it is probable that satisfactory arrangements will be made.

A letter by Colonel Robert I. Rees reads:

"All young men who were planning to go to school this fall should carry out their plans to do so. Each should go to the college of his choice, matriculate and enter as a regular student.

"As soon as possible after registration day, probably on or about October 1, opportunity will be given for all the regularly-enrolled students to be inducted into the Students' Army Training Corps at the schools where they are in attendance.

"The student, by voluntary induction, becomes a soldier in the United States Army, uniformed, subject to military discipline and with the pay of a private. They will simultaneously be placed on full active duty, and contracts will be made as soon as possible with the colleges for the housing, subsistence and instruction of the student soldiers."

There are no exceptions or discriminations. The same rule applies to all boys of eighteen who are well enough educated to pass the entrance requirements of the colleges and universities.

Boys who can not pass the entrance requirements to colleges and who have only grammar school education, will have opportunity to apply for admission to vocational schools.

OPPORTUNITY IN HAITI FOR AMERICAN PHARMACISTS.

AMERICAN PHARMACEUTICAL ASSOCIATION:

The declaration of war upon Germany by the Republic of Haiti has led to the sequestration of most of the German firms doing business in the Republic. Prior to the declaration practically the entire drug business was controlled by Germans whose establishments have now been closed, with the result that at the present time the few remaining pharmacists, Haitian-owned, are worked beyond their capacity with limited stocks and more or less incompetent clerks.

As the head of the Public Health Service of Haiti I am exceedingly anxious to see a dependable trade in pharmaceuticals established in the island, and as an American I am anxious that the trade should in future be dominated by Americans, thus insuring the sale of American products and the establishment of the drug business on an American basis. The drug business here has always been a thriving and exceedingly profitable one, and this offers an exceptional opportunity. Sufficient capital would of course be required.

(Capable, wide-awake American pharmacists are desired.)

N. M. LEON,
Surgeon, U. S. Navy,
Sanitary Engineer of Haiti.

Port au Prince,
Haiti,
August 16, 1918.

COUNCIL BUSINESS

COUNCIL MEETINGS.

THIRD SESSION OF THE COUNCIL, 1917-1918.

The Third Session of the Council of the American Pharmaceutical Association for 1917-18 was held at the Congress Hotel, Chicago, on Tuesday, August 13, 1918, at 7.30 P.M.

The meeting was called to order at 7.30 P.M. by Chairman L. C. Hopp.

Present: Messrs. L. C. Hopp, H. V. Arny, T. J. Bradley, Jacob Diner, Clair A. Dye, R. P. Fischelis, J. W. England, E. N. Gathercoal, J. G. Godding, S. L. Hilton, C. B. Jordan, L. E. Sayre, L. A. Seltzer, Clyde M. Snow, Dr. F. E. Stewart, Dr. Henry M. Whelpley, F. J. Wulling, E. F. Kelly, E. G. Eberle, W. B. Day, J. A. Koch and Jeannot Hostmann.

The reading of the minutes of the second session for 1917-18, held at the Hotel Claypool (Indianapolis), on September 1, 1917, was, on motion, dispensed with. (See p. 1104, December Journal, A. Ph. A., 1917.)

Announcement was made of the passage of *Motion No. 30 (Election of Members, Nos. 269 to 298, inclusive)* and of *Motion No. 31 (Establishment of Wilkes-Barre Branch, A. Ph. A.)*.

Applications for membership from Nos. 299 to 395, inclusive, were presented and favorably acted upon. The list was:

- No. 299. Patrick Joseph Biesty, 12 Haverford St., Jamaica Plain, Mass. Awarded prize in Massachusetts College of Pharmacy. Rec. by E. H. LaPierre and Theo. J. Bradley.
- No. 300. Arthur E. Fechter, 321 North Clark St., Chicago, Ill., rec. by E. P. Noennam and Wm. B. Day.
- No. 301. Leon Nahabed Charkoudian, 252 Worthington St., Springfield, Mass. Awarded Prize in Massachusetts College of Pharmacy. Rec. by Theo. J. Bradley and John G. Godding.
- No. 302. Argiris Georges Sampanis, 179 Warren Ave., Boston, Mass. Awarded Prize in the Massachusetts College of Pharmacy. Rec. by Howard H. Smith and Theo. J. Bradley.
- No. 303. Arthur Nutter Brown, 27 Warwick St., Boston, Mass. Awarded Prize in the Massachusetts College of Pharmacy. Rec. by John G. Godding and Theo. J. Bradley.
- No. 304. Roscoe Tracy Burrows, Noank, Ct. Awarded Prize in the Massachusetts College of Pharmacy. Rec. by C. Herbert Packard and Theo. J. Bradley.
- No. 305. Ewell Ashby Brugh, Altavista, Va., rec. by W. F. Rudd and Philip F. Fackenthall.
- No. 306. Julian Lichtenstein, 17th & Main Sts., Richmond, Va., rec. by W. F. Rudd and J. E. Jackson.
- No. 307. Horace C. Littlejohn, Leesburg, Va., rec. by W. F. Rudd and J. E. Jackson.
- No. 308. Frank Schrage, 2200 N. Clark Street, Chicago, Ill., rec. by E. P. Noennam and Wm. B. Day.
- No. 309. Leon Clifton Ellis, 2 Market Street, Lynn, Mass., rec. by John G. Godding and Theo. J. Bradley.
- No. 310. Roger E. Monroe, 500 W. Broad Street, Richmond, Va., rec. by W. F. Rudd and E. Brandis.
- No. 311. Charles T. Hull, 141 Dixwell Ave., New Haven, Conn., rec. by J. W. England and E. G. Eberle.
- No. 312. Frank Taylor Stone, 1210 Pa. Ave., N. W., Washington, D. C., rec. by J. C. Peacock and J. W. England.
- No. 313. Bert Alexander Smyser, 1400 Pa. Ave., S. E., Washington, D. C., rec. by Redmond Mayo and S. L. Hilton.
- No. 314. E. Paul Gibney, 146 W. Kinzie Street, Chicago, Ill., rec. by William Gray and Wm. B. Day.
- No. 315. Charles Reynolds Rhodes, Hyndman, Pa., rec. by Robert P. Fischelis and Charles H. LaWall.
- No. 316. Archie L. Tufts, 1359 St. Nicholas Ave., New York, N. Y., rec. by Hugo Kantrowitz and E. G. Eberle.
- No. 317. John J. McClugage, 1140 E. 63rd St., Chicago, Ill., rec. by Wm. B. Day and M. A. Miner.

- No. 318. George M. Bennett, 135-37 W. Main Street, Urbana, Ill., rec. by Wm. B. Day and Jas. H. Beal.
- No. 319. Samuel Morgan Evans, 408 Luzerne Ave., W. Pittston, Pa., rec. by P. Henry Utech and Wm. B. Day.
- No. 320. Donald Cameron Margerum, 30 S. 10th St., Philadelphia, Pa., rec. by Charles H. LaWall and J. C. Peacock.
- No. 321. Ernest Louis Naviaux, 26 S. Crawford Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 322. Charles Hugo Grund, Jr., 3511 Archer Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 323. Charles G. Knight, 338 E. 51st Street, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 324. F. G. J. Stieber, 33rd Street & Indiana Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 325. Miguel A. Veve, Box 96, Fajardo, Puerto Rico., rec. by Rudolph Wirth and Robert C. Pursell.
- No. 326. Luis Mulet, Avenue 11th, August No. 74, Mayaguez, Porto Rico, rec. by Rudolph Wirth and Robert C. Pursell.
- No. 327. Carl Abrahamson, 540 W. Randolph Street, Chicago, Ill., rec. by O. F. Fuller and Wm. B. Day.
- No. 328. Charles Fuller, 540 W. Randolph Street, Chicago, Ill., rec. by O. F. Fuller and Wm. B. Day.
- No. 329. Albert A. Kurrasch, 301 W. 47th Street, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 330. Edward T. Hahn, 1242 N. 53rd St., Philadelphia, Pa., rec. by J. C. Peacock and Bertha L. Peacock.
- No. 331. Arthur W. Stadelmann, 1553 W. 69th St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 332. Jos. Parks Thomas, 1916 W. Chestnut Street, Altoona, Pa., rec. by J. A. Koch and John H. Wurdack.
- No. 333. John Krizan, 4200 West Van Buren St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 334. Ralph Milton Eberly, 27 N. Broadway, Aurora, Ill., rec. by Wm. B. Day and L. C. Staudt.
- No. 335. L. N. Benton, 31 So. Broadway, Aurora, Ill., rec. by Wm. B. Day and L. C. Staudt.
- No. 336. George Zoeller, 1557 West Chicago Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 337. Louis A. Elisburg, 6260 Champlain Ave., Chicago, Ill., rec. by J. W. England and E. G. Eberle.
- No. 338. Charles E. Graham, 403 East 8th St., Kansas City, Mo., rec. by Henry D. Lewellyn and M. W. Whitney.
- No. 339. Felix Wm. McClerkin, 700 Main St., Little Rock, Ark., rec. by Frank Schachleiter and H. M. Whelpley.
- No. 340. John George Mick, 2843 Indiana Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 341. Carroll E. Wood, 201 9th Ave., S. W., Roanoke, Va., rec. by Maud Lambert and W. F. Rudd.
- No. 342. Marshall L. Bize, 7th Avenue, Ybor City, Fla., rec. by M. M. Taylor and E. Berger.
- No. 343. Alexander C. Peska, 4332 Thomas St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 344. Charles A. Locke, Brookings, S. D., rec. by Wm. B. Day and J. W. England.
- No. 345. Anna Schultz, 2 East Main Street, Tremont, Pa., rec. by Charles H. LaWall and Josiah C. Peacock.
- No. 346. Henry Clay Tindall, 217 E. Broadway, Excelsior Springs, Mo., rec. by Paul L. Hess and H. M. Whelpley.
- No. 347. Paul Gschwender, c/o Highland Park Sta., Des Moines, Iowa. Awarded Waterbury Prize Highland Park College of Pharmacy. Rec. by E. O. Kagy and H. M. Whelpley.

- No. 348. John Gustav Anderson, Wadena, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 349. A. J. Kline, 2550 Bloomington Ave., Minneapolis, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 350. E. E. Krueger, Glenwood, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 351. Bernard Mamer, Welcome, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 352. L. Miner Herbert, Worthington, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 353. Dillwyn W. Jones, Mabel, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 354. John Nelson, Lake Park, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 355. Louis Sidney Stein, City Drug Store, Hibbing, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 356. Martin Moliter, 702 St. Germain St., St. Cloud, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 357. Henry C. Micklesen, Hudson, Wis., rec. by E. L. Newcomb and F. J. Wulling.
- No. 358. Edward L. Hoffman, 215 So. Broadway, Rochester, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 359. Nels J. Sylvander, 423 W. 3rd St., Red Wing, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 360. G. E. Lammon, 606 Laurel St., Brainerd, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 361. Frank A. Steiner, 107 South Front St., Mankato, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 362. John T. Johnson, 105 Lincoln Ave., E., Fergus Falls, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 363. Lauritz M. Koefod, Granite Falls, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 364. Andrew W. Clay, Grygla, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 365. Horace Samuel Conger, Ogilvie, Minn., rec. by E. L. Newcomb and Chas. L. Huber.
- No. 366. P. H. Claydon, St. James Medical Block, Red Wing, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 367. Gustave Jules Demars, Fertile, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 368. Edmund I. Casey, Chisholm, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 369. Del Delos Turner, c/o College of Pharmacy, Univ. of Minn., Minneapolis, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 370. Fred G. Kustermann, 1517 Como Ave., S. E., Minneapolis, Minn., rec. by E. L. Newcomb and Chas. H. Kuhn.
- No. 371. Daniel B. Dooley, 758 Adams St., N. E., Minneapolis, Minn., rec. by E. L. Newcomb and Chas. H. Kuhn.
- No. 372. David K. Bryant, 302 Conley Ave., So., Thief River Falls, Minn., rec. by Chas. H. Kuhn and E. L. Newcomb.
- No. 373. Bernard C. Rotegard, Hartland, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 374. John E. Goldner, 1854 Central Ave., Minneapolis, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 375. Louis James Aberwald, 940 Marshall Ave., St. Paul, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 376. Richard T. Dukelow, Gilbert, Minn., rec. by Chas. H. Huber and E. L. Newcomb.
- No. 377. Charles F. Karnofsky, 1823 Bryant Ave., No., Minneapolis, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 378. Oscar William Seaquist, Good Thunder, Minn., rec. by E. L. Newcomb and Chas. H. Huber.
- No. 379. Norman Carl Schreiter, Red Lake Falls, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 380. John Herman Scott, Eden Valley, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 381. Theodore A. Arneson, 413 So. 6th St., Montevideo, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 382. Carl A. Warner, 8201 Broadway, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 383. Walter F. Hagemeister, 13800 St. Clair Ave., Cleveland, Ohio., rec. by H. F. Guenther and H. V. Arny.

- No. 384. Harlin Eggleston Mason, Main St., Smithville, Tenn., rec. by T. J. Shannon and Wm. B. Day.
- No. 385. Amelia Adelaide Sonnenburg, 1921 W. Lexington St., Baltimore, Ind., rec. by E. F. Kelly and H. P. Hynson.
- No. 386. Russell Myers Stewart, Wakarusa, Ind. Awarded Prize in Pharmacy, School of Pharmacy of University of Illinois. Rec. by C. M. Snow and Wm. B. Day.
- No. 387. Warren Dale Morrison, 6026 Drexel Ave., Chicago, Ill., rec. by M. A. Miner and Wm. B. Day.
- No. 388. Florian Joseph Schmidt, 7904 Stony Island Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 389. Hugh Benton Honens, 425 Harrison, Oak Park, Ill., rec. by E. N. Gathercoal and Wm. B. Day.
- No. 390. Lotis Loma Huston, 200 Harrison St., Oak Park, Ill., rec. by E. N. Gathercoal and Wm. B. Day.
- No. 391. Alfred Reuben Utt, Glen Ellyn, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 392. Nols N. Brakke, McVillie, N. D., rec. by W. P. Porterfield and Wm. B. Day.
- No. 393. S. P. Kogon, 1852 George St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 394. Roy Gould Cook, 61 Broadway, Fargo, No. Dak., rec. by W. P. Porterfield and Wm. B. Day.
- No. 395. Sebastian Fabian Schick, Suite 317, Woodruff Bldg., Joliet, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

The Report of the Secretary of the Council was presented and approved. It was as follows:

Members of the Council.

GENTLEMEN:

The Council held sessions at the Indianapolis (1917) meeting and has transacted its business by mail since.

Twenty Council Letters have been issued covering 45 pages and 31 motions.

A synopsis of the motions of the Council is attached.

The members elected to date number 395; the number elected last year by the first session at Indianapolis was 310.

The membership of the Council numbers 40, of which 17 are representatives of local branches.

A number of changes of membership have taken place. Charles Holzhauer and Wm. L. Dewoody are deceased. E. F. Kelly has succeeded H. Engelhardt.

There are 21 local branches, including the Wilkes-Barre Branch, permission for the establishment of which was granted last month, of which 17 at present have Council representatives; those not having are West Virginia, Montana, Wilkes-Barre and Cuba.

The three members of the Council elected by mail in November last for 1918-19 were: Caswell A. Mayo, New York; Charles E. Caspari, St. Louis; and Charles Holzhauer (since deceased).

Respectfully submitted,

August 12, 1918.

J. W. ENGLAND,
Secretary of the Council.

SYNOPSIS OF MOTIONS OF THE COUNCIL, 1917-18.

Motion No. 1. That \$100 be appropriated for the expenses of the Committee on Membership. Carried.

Motion No. 2. That the sum of \$25 be appropriated towards the expenses of the American Joint Committee on Horticultural Nomenclature. Carried.

Motion No. 3. That \$10 be appropriated for an organization-membership for the American Pharmaceutical Association in the American Metric Association. Carried.

Motion No. 4. That an additional appropriation of \$400 for the Year Book, 1915, Vol. 4, be made. Carried.

Motion No. 5. That an appropriation of \$75 be made for the purchase of buttons and pins. Carried.

Motion No. 6. Election of members Nos. 1 to 19, inclusive. Carried.

Motion No. 7. That a special Committee on Research be appointed. Carried.

Motion No. 8. That the Council chairman and the Association president join in the appointing of the Special Committee on Research. Not carried.

Motion No. 9. That a chairman of the Special Committee on Research be appointed and that he be asked to recommend names for the remaining positions on the committee; to be voted upon by the Council. Carried.

Motion No. 10. That there be placed in nomination for election by the Council fifteen nominees, as follows: The five members of the Scientific Section Committee, the five members of the Council Committee on Financial Control of N. F., and five additional nominees to be named by the Council; from these fifteen nominations the ten members are to be elected. Not carried.

Motion No. 11. Election of members Nos. 26 to 27, inclusive. Carried.

Motion No. 12. That the 66th annual convention of the American Pharmaceutical Association be held in the week beginning August 12, 1918. Carried.

Motion No. 13. That E. N. Gathercoal, of Chicago, be elected as Local Secretary for 1918. Carried.

Announcement of the death of Charles Holzhauer, President of the American Pharmaceutical Association, on November 19, 1917.

Motion No. 14. That proposed budget of appropriations for 1918 be approved. Carried.

PROPOSED BUDGET OF APPROPRIATIONS FOR 1918.

Appropriations for General Expenses:

| | | |
|-----------------------------------------------------------|----------|----------|
| No. 1. Salaries..... | \$ 6,150 | |
| No. 2. Printing, Postage and Stationery..... | 1,000 | |
| No. 3. Clerical Expenses, Secretary's Office..... | 416 | |
| No. 4. Miscellaneous Expenses..... | 200 | |
| No. 5. Stenographers..... | 350 | |
| No. 6. Traveling Expenses..... | 150 | |
| No. 7. Committee on Membership..... | 250 | |
| No. 8. Committee on Unofficial Standards..... | 100 | |
| No. 9. Year Book..... | 3,000 | |
| No. 10. Premium on Treasurer's Bond..... | 50 | |
| No. 11. National Drug Trades Conference..... | 200 | |
| No. 12. Section on Scientific Papers..... | 25 | |
| No. 13. Section on Education and Legislation..... | 25 | |
| No. 14. Section on Commercial Interests..... | 25 | |
| No. 15. Section on Practical Pharmacy and Dispensing..... | 25 | |
| No. 16. Section on Historical Pharmacy..... | 25 | |
| No. 17. Women's Section..... | 25 | |
| No. 18. National Syllabus Committee..... | 25 | |
| No. 19. Committee on Recipe Book..... | 50 | |
| | <hr/> | |
| | \$12,091 | \$12,091 |

Appropriations for Open Accounts

| | | |
|------------------------------------------|----------|----------|
| No. 20. Journal..... | \$ 6,250 | |
| (a) Publication..... | \$5,000 | |
| (b) Clerical Expenses..... | 800 | |
| (c) Postage and Stationery..... | 300 | |
| (d) Freight, Drayage, Miscellaneous..... | 150 | |
| No. 21. National Formulary..... | 1,000 | |
| No. 22. Badges and Bars..... | 50 | |
| No. 23. Certificates..... | 50 | |
| | <hr/> | |
| | \$ 7,350 | 7,350 |
| | | <hr/> |
| | | \$19,441 |

Motion No. 15. That an additional appropriation of \$28 72 be made for Women's Section for 1916-17. Carried.

Motion No. 16. Election of members Nos. 28 to 62, inclusive. Carried.

Announcement of the death of Joseph P. Remington, past President of the American Pharmaceutical Association, on January 1, 1918.

Motion No. 17. Recommendation for membership of Committee on Research. Carried.

The Committee on Research designated was: Harry V. Arny, Chairman (appointed by the Chairman of the Council), George M. Beringer, Julius A. Koch, Henry Kraemer, Charles H. LaWall, Edward Kremers, Wilbur L. Scoville, Alviso B. Stevens, Frederick B. Power and Henry Milton Whelpley.

Motion No. 18. Election of members Nos. 63 to 68, inclusive. Carried.

Motion No. 19. Election of members Nos. 69 to 84, inclusive. Carried.

Motion No. 20. Grant of Request of Smithsonian Institute for Journals. Carried.

Motion No. 21. Election of members Nos. 85 to 114, inclusive. Carried.

Motion No. 22. That the program for the 1918 Annual Meeting as finally revised be approved. Carried.

Motion No. 23. Election of members Nos. 115 to 133, inclusive. Carried.

Motion No. 24. That the Council grant the request of the New York Branch for the consent and moral support of the parent organization in the awarding of the proposed Joseph P. Remington Medal (C. L. No. 14). Carried.

Motion No. 25. Election of members Nos. 134 to 144, inclusive. Carried.

Motion No. 26. Election of members Nos. 145 to 204, inclusive. Carried.

Motion No. 27. That the Treasurer be directed to invest in Liberty Bonds, two thousand dollars or more, in addition to the ten thousand dollars already invested in such bonds, for account of the American Pharmaceutical Association Research Fund. Carried.

Motion No. 28. Election of members Nos. 205 to 247, inclusive. Carried.

Announcement of the death of William L. Dewoody, Honorary President of the American Pharmaceutical Association.

Motion No. 29. Election of members Nos. 248 to 266, inclusive. Carried.

Motion No. 30. Election of members Nos. 269 to 298, inclusive. Carried.

Motion No. 31. Granting of Petition to Establish Wilkes-Barre Branch, A. Ph. A. Carried.

Attention was called to the rising costs of the clerical and other work of the officials of the Association and the subject was discussed at length.

On motion of H. V. Arny, seconded by Dr. F. E. Stewart, the subject was referred to the Committee on Finance to consider and report upon later to the Council.

NATIONAL DRUG TRADE CONFERENCE.

President James H. Beal, of the National Drug Trade Conference, has appointed the following important committees: Committee on Pharmaceutical Corps, Samuel C. Henry, chairman; Charles J. Lynn and S. L. Hilton. Committee on Alcohol Legislation, Charles M. Woodruff, chairman; Charles A. West and James F. Finneran. Committee on Anti-Narcotic Legislation, John C. Wallace, chairman; Fred K. Fernald and Eugene C. Brokmeyer. Committee on Formulas and Labels, Harry B. Thompson, chairman; C. Mahlon Kline and Charles M. Woodruff.

EDITORIAL NOTES

Editor: E. G. FBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman*; G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio*.

Editorial Office: 253 Bourse Building, Philadelphia, Pa.

TREATMENT OF WAR WOUNDS BY MAGNESIUM SULPHATE

According to the *Scientific American*, Doctors Morrison and Tulloch now obtain very good results in the treatment of wounds by the use of the following solution which is sterilized by heating in a digester of the usual type: Magnesium sulphate, 400 parts, dissolved in a mixture of 100 parts glycerine and 300 parts boiling water. In the treatment of a fresh wound, this is opened widely and a 5 percent phenol solution is applied for 24 hours, after which the preceding solution is applied by means of compresses. The solution is renewed every 12 hours in the case of suppurated wounds. The pus disappears in two or three days, the scars become detached and the wound is now a bright red color. Growth of the epithelium is rapid, and the treatment can be continued until the wound is entirely healed. The solution should be employed in the above strength, for it is found that weaker solutions are not sufficiently active in the cure. As to the method of action which enters in here, this takes place by osmose, as in the case of Wright's solution. It will be remembered that the latter contains 5 parts citrate of soda and 50 parts salt per 1,000 parts water. Magnesium sulphate, when thus employed, is said to be painless. As it is not absorbed by the system, it cannot exert a harmful action on the white corpuscles contained within the granulations. It has a specific destructive action upon various microbes such as the coli and pyocyanic bacillus.

INCREASING THE SOLUBILITY OF BORIC ACID BY MEANS OF SODIUM BORATE.

H. L. Harris communicates to us that the research chemist of the Pacific Coast Borax Company advises that 12 parts of borax and 13 parts of boric acid will dissolve in 75 parts of water, thus making a solution containing the equivalent of 19 percent of boric acid.

THE CONVERSION OF SUGAR IN SYRUP TO INTENSIFY ITS SWEETENING POWER.

J. J. Willaman suggests the following formula for a syrup containing invert sugar: To 10 pounds of granulated sugar, four and one-half pints of water and one-fifth of an ounce of tartaric acid. The solution is boiled slowly in a covered vessel for from thirty to thirty-five minutes, taking care to discontinue boiling before the syrup darkens. This will yield about 14 pounds of a syrup, which the author states has pound for pound the same sweetening power as sugar. The calculation is made on the basis that 105.24 pounds of invert sugar possesses the sweetening power of 135 pounds of cane sugar.

THE GLYCERIN SITUATION.

Officials in the Food Administration, War Industries Board, and elsewhere in the war work establishments, explain that it is not a question of getting fats to make glycerin, but the making of glycerin and disposing of the accompanying products, such as soap. They point out that there is a shortage of storage capacity at the plants, and that in the manufacture of glycerin the other materials have to be used up and a market provided for the by-products, which were the principal products before the war, or else there will be just so much economic waste. The situation in regard to glycerin is now very promising, they say, and no alarm need be felt if the industry continues to cooperate as it has been doing.

The increase in the production of crude glycerin through recovery of grease from garbage seems to be making some progress.

DR. LUCIUS P. BROWN REINSTATED.

Director L. P. Brown, of the New York City Bureau of Foods and Drugs, has been reinstated, which is good proof that the charges against his administration lacked substantiality. One charge against Doctor Brown was in substance that he recognized the ability, efficiency and creditable work of his

assistants, who by their faithful service gave greater latitude for the Director to carry out reforms and broaden the scope of his work of his department. The Board of Health states: "It is fortunate, indeed, that these subordinates were so capable."

Robert P. Fischelis, ex-chairman Section on Commercial Interests, A. Ph. A., is now in the

Chemical Welfare Service of the U. S. Army. He is stationed at the Control Laboratory of the Gas Defense plant, Long Island City, N. Y.

Ensign John Jay Schieffelin, son of Dr. Wm. Jay Schieffelin, was recently commended for his service in directing an American destroyer to a German U-boat. Ensign Schieffelin is pilot of a U. S. seaplane.

SOCIETIES AND COLLEGES.

ENTERTAINMENTS OF THE CHICAGO MEETING A. Ph. A.

It is always a difficult matter to mention all who contribute to the hospitalities and enjoyments of a convention. So the safe plan will be followed in generalization by giving credit for the complete success of this part of the program to Chairman Charles E. Matthews, Local Secretary E. N. Gathercoal and their host of able and splendid co-workers. It should also be said that the good ladies contributed in many ways even to the extent of serving the luncheon on the Municipal Pier and under the auspices of the Chicago Retail Druggists' Association.

The President's reception was followed by a dance and refreshments. Secretary Day introduced the guests and members to President Dohme and Mrs. Charles Matthews, President-elect, and Mrs. LaWall.

The alumni absorbed the spirit of the times and met in one room for the annual banquet. So pleasing was the fraternization that the same idea will likely be continued.

To speak of the Round Table Luncheon in adequate words would require columns instead of the few lines here possible. Corresponding Secretary Wilhelm Bodemann presided and flung typical Bodemann badinage to the assembled and was never at a loss to exhibit the good-fellowship which characterizes the Chicago Veteran Druggists' Association. Charles Matthews was the birthday child. Honorary President O. F. Fuller occupied the seat near to the toastmaster. His welcome to the guests exhibited his geniality and how to be young at eighty.

The automobile drive took the visitors over about 35 miles of Chicago's famous boulevards. The dinner of the evening was presided over by James W. Morrisson as toastmaster and the speakers were Ex-President A. R. L. Dohme, President Charles H. LaWall, Harrison B. Riley and Dr. W. A. Evans.

Music and song added to the enjoyment of the closing event of Chicago's entertainments.

The arrangements throughout were as nearly perfect as possible and even the weather, with the exception of that of the first two days, was delightful.

This brief report would be incomplete without reference to the daily issues of the *Western Druggist*. Appreciation was voiced by the members and shown each morning by their eagerness to secure copies of the publications.

THE REGISTRATION LIST OF THE CHICAGO CONVENTION, A. Ph. A.

Aberwald, F. J., St. Paul.
 Abrahamson, Carl A., and Mrs., Chicago.
 Ahlborn, Frank H., and Mrs., Chicago.
 Anderson, Wm. C., and Mrs., Brooklyn.
 Antonow, Sam'l L., Chicago.
 Arndt, E. J., Chicago, Ill.
 Arny, H. V., New York City.
 Avery, Chas. H., and Mrs., Chicago.
 Bagley, Anna G., Miss., Columbus, O.
 Beal, J. H., Urbana, Ill.
 Becker, I. A., Chicago.
 Bell, Franklin, Chicago.
 Benhard, A. H., Great Lakes, Ill.
 Benkie, John G., Kouts, Ind.
 Bennett, Geo. M., and Mrs., Urbana, Ill.
 Berger, Ernest, Tampa, Fla.
 Berger, Louise M., Chicago.
 Bibbins, Francis E., Indianapolis.
 Bingham, W. E., Tuscaloosa, Ala.
 Blakeslee, L. G., St. Louis.
 Block, Mitchell, Excelsior Springs, Mo.
 Blocki, John, Chicago.
 Bodemann, Wilhelm, Chicago.
 Boerner, Emil L., Iowa City, Ia.
 Bradley, Theo. J., Boston.
 Breves, Rudolph, Dr., Waukegan, Ill.
 Brill, J. P., Chicago.
 Buss, Oliver C., Chicago.
 Bye, Mortimer, Detroit.
 Byrnes, Geo. R., Great Lakes, Ill.

- Campbell, F. B., Chicago.
 Carleton, Chas. G., Washington, D. C.
 Carter, Edgar B., Indianapolis, Ind.
 Caspari, Chas. E., St. Louis.
 Clark, A. H., Chicago.
 Claus, Otto F., M.D., and Mrs., St. Louis.
 Clayton, Chas. J., Denver, Colo.
 Conibs, Delta E., Chicago.
 Cooper, Zada M., Miss, Iowa City, Iowa.
 Cousins, W. H., Dallas, Tex.
 Christensen, H. C., and Mrs., Chicago.
 Christensen, Vera Peck, Miss, Chicago.
 Crain, G. L., Great Lakes, Ill.
 Crowley, Jas. A., and Mrs., Chicago.
 Culley, John, Ogden, Utah.
 Day, Elsie, Lincoln, Nebr.
 Davy, Edward R., Columbus, O.
 Day, W. B., and Misses Helen and Charlotte, Chicago.
 Deer, J. C., Miss, Chicago.
 Denton, W. S., Beardstown, Ill.
 Dickman, Geo. C., New York City.
 Diner, Jacob, New York City.
 Dohme, Dr. A. R. L., Baltimore, Md.
 Doolittle, R. E., Chicago.
 Dorsey, Edward, and Mrs., Ottawa, Kansas.
 Dowling, Oscar, New Orleans, La.
 Druehl, Amanda L., Chicago.
 Dubsky, Frank J., Chicago.
 DuMez, A. G., Washington, D. C.
 Dye, C. A., Columbus, O.
 Eberle, A. R., Milwaukee, Wis.
 Eberle, E. G., and Mrs., Philadelphia, Pa.
 Eberle, H. T., Watertown, Wis.
 Eehols, R. T., Valparaiso, Ind.
 Ekstrand, F. W., Salina, Kans.
 Eldred, Frank R., Indianapolis.
 Elsner, F. H., Chicago.
 Elson, J. R., Wellsburg, W. Va.
 Elvig, Henry M., Valparaiso, Ind.
 Englund, J. W., and Mrs., Philadelphia, Pa.
 Engellhard, G. P., Chicago.
 Englehardt, H., Baltimore, Md.
 Esau, Fred, and Mrs., Milwaukee, Wis.
 Ewing, Clare Olin, and Mrs., Washington, D. C.
 Ewing, S. E., Creston, Neb.
 Falkenhainer, Al., Algona, Iowa.
 Falkenhainer, Chas., and Mrs., Dubuque, Ia.
 Fantus, Bernard, and Mrs., Chicago.
 Farwell, O. A., Columbus, O.
 Fechter, A. E., Chicago.
 Figgis, W. W., New York.
 Fischelis, Robert P., Philadelphia, Pa.
 Fisler, O. L., Chicago.
 Forbrich, Jos. F., and Mrs., Chicago.
 Ford, C. M., Cambridge, Mass.
 Ford, Marjorie, Miss, Denver, Colo.
 Francis, J. M., Detroit, Mich.
 Freericks, Frank H., Cincinnati, O.
 Fry, Herman, Chicago.
 Fuller, O. F., Chicago.
 Gathercoal, E. N., Oak Park, Ill.
 Gayle, J. W., Frankfort, Ky.
 Genz, Geo. L., Chicago.
 Gietner, Chas. J., St. Louis, Mo.
 Ginsburg, Sylvia, Miss, Chicago.
 Glover, C. C., Ann Arbor, Mich.
 Godding, John G., Boston.
 Gordin, H. M., Chicago.
 Gordon, Jean, Miss, Chicago.
 Gray, M. M. Mrs., Chicago.
 Gray, Wm., and Mrs., Chicago.
 Gregg, Thos. D., Harrisburg, Ill.
 Gregory, Louise F., Mrs., Buffalo, N. Y.
 Gregory, Willis G., Buffalo, N. Y.
 Guenther, H. F., Cleveland, O.
 Haas, G. H., Chicago, Ill.
 Haerring, Geo. V., and Mrs., Chicago.
 Hagemeister, W. F., Cleveland, O.
 Hamilton, H. C., Detroit, Mich.
 Handy, John A., Buffalo, N. Y.
 Hankey, William T., Cleveland, O.
 Harris, Daisy M., Miss, Chicago.
 Hatfield, Frank D., and Mrs., Chicago.
 Hatfield, W. H., Mrs., Chicago.
 Haussamen, H. L., Grafton, N. D.
 Henry, S. C., and Mrs., Chicago.
 Hess, Paul L., Kansas City, Mo.
 Hilton, S. L., Washington, D. C.
 Hobart, A. W., Mrs., Chicago.
 Hoelzer, A., Chicago.
 Hoelzer, B. O. A., and Mrs., Chicago.
 Hogan, W. C., Atkins, Ark.
 Holliday, F. E., New York City.
 Holphoefer, H. J., Chicago.
 Honorof, P., and Mrs., Gary, Ind.
 Hoover, Geo. D., Chicago.
 Hopp, Lewis C., Cleveland, O.
 Horlick, A. J., Racine, Wis.
 Hostmann, Jeannot, Hoboken, N. J.
 Hottinger, Otto, Chicago, Ill.
 Hulskamp, Clara, Louisville, Ky.
 Hunsche, Fredk., Chicago, Ill.
 Hynson, Henry P., Baltimore, Md.
 Inman, F. T., Jr., Detroit.
 Irvine, E. D., and Miss Lois, Chicago.
 Jennings, Ralph C., Chicago.
 Jordon, C. B., Lafayette, Ind.
 Judisch, Geo., Ames, Iowa.
 Kagy, E. O., Des Moines, Ia.

- Kantrowitz, Hugo, New York.
 Katz, Helen B., Miss, Chicago.
 Kebler, L. F., Dr., and Miss Ida E., Wash-
 ington, D. C.
 Kelly, E. F., Baltimore, Md.
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Zehner, G. O., New York City.
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 Zembtsch, Lawrence, U. S. N., Great Lakes, Ill.
 Zoeller, Geo., and Mrs., Chicago.
 Zwick, Mary, Chicago.

OFFICERS OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

The new officers and committeemen elected by the National Association of Board of Pharmacy are: *President*, John Culley, of Utah; *Vice-Presidents*, H. G. Ruenzel, of Wisconsin; E. V. Sheely, of Tennessee; and Edward Dorsey, of Kansas; *Secretary*, H. C. Christensen, of Illinois; *Treasurer*, C. H. Skinner, of Vermont; *Executive Committee*, H. E. Purdy, of Connecticut; W. R. Jarrett, of Oklahoma, and Charles Gietner, of Missouri; *Advisory Examination Committee*, H. C. Christensen, Burton Cassady, of Indiana, and Charles Falkenhainer, of Iowa; new member of Syllabus Committee, George W. McDuff, of Louisiana.

THE MEETING OF THE NATIONAL ASSOCIATION OF RETAIL DRUGGISTS.

The National Association of Retail Druggists convenes in New Orleans this week. Any one acquainted with the hospitalities of the host city and its many attractions will know that the reception of the members will be warm and the entertainments many and interesting. The essence of association meetings this year is work and the plans have been laid accordingly. We express the hope for a satisfactory attendance.

THE NATIONAL PHARMACEUTICAL SERVICE ASSOCIATION.

Secretary E. Fullerton Cook, 145 N. 10th St., Philadelphia, has sent out a letter urging cooperation in securing the passage of the Edmonds' Bill. Of particular value are personal letters to Congressmen from medical men and the laity. Signature lists endorsing the proposition are helpful and these can be readily secured if the purpose is explained. Literature and petition blanks can be obtained from Secretary Cook.

The communication reads in part:

"Throughout the entire United States and the world, physicians in private practice have, and are, depending upon the services of trained pharmacists in their administrations to the

sick, and in every European country, where army organization on a large scale has been the study of years, this same coöperation between the physician and pharmacist has been made a feature of the Medical Corps. The men in our army need this complete organization for the best medical treatment, army physicians need the help of pharmacists in the buying, preparing, standardizing, and dispensing of the potent remedies used in the treatment of the sick and wounded, the United States Government has had need, and has been using, trained pharmacists since the beginning of the war, in the buying, standardizing, and manufacturing of these same remedies, and the United States Navy has for many years recognized the necessity for the service of a trained officer, who embraces those qualifica-

tions contemplated for the Army by the Edmonds Bill."

FOURTH INTERNATIONAL EXPOSITION OF CHEMICAL INDUSTRIES.

Rich G. Hollaman, president of the International Exposition Company, has been notified from Washington that in the event of Grand Central Palace, New York City, being taken over by the Government for war purposes, this action will not in any way interfere with the holding of the Fourth National Exposition of Chemical Industries, scheduled to be held in that building September 23-30. That portion of the building required for the exposition will positively not be taken over by the Government until October 1st or later.

THE PHARMACIST AND THE LAW.

THE SALE OF ALCOHOL, DISTILLED LIQUORS, ETC., BY RETAIL DRUGGISTS.

In reply to a letter from this office to the Internal Revenue Service, at Philadelphia, we have received the following information:

1. To sell alcohol as such or beverage alcohol the alcohol must have been distilled prior to September 8, 1917, and the retail druggists must have a license for such sales.

2. To sell non-beverage alcohol the alcohol must be medicated according to one of the eleven formulas prescribed at the time of sale in a quantity not exceeding one pint. For such sales the retail druggists need not have a license, but they must first file a bond with the Revenue Office for the sale of such non-beverage alcohol, medicated according to the prescribed formulas, before making such sales. This bond must be in an amount proportionate to the number of gallons in the druggist's possession at any one time.

The rule set forth in T. D. 2717 prescribes that only the sales of malt extracts containing more than 2 percent alcohol or less than 12 percent solid matter are liable for the payment of special tax. These percentages refer only to malt liquors and not to spirits or wines.

Retail druggists need not pay a special tax of the retail liquor dealer to fill prescriptions containing whisky or brandy unless the said prescriptions are unmixed or unmedicated and fit for beverage purposes.

AMENDMENT TO HARRISON LAW IS PROPOSED BY CONGRESSMAN H. T. RAINEY, OF ILLINOIS.

In presenting amendments to the Harrison Law, Congressman Rainey stated that in the first draft there were 80,000 drug addicts, and that there were 8,800 addicts in New York City. In his further remarks he said that he had the names of 25 physicians, commissioned as captains and majors in the Army who are confirmed addicts; one of them was recently discovered with 50 ounces of opium before starting for France.

Congressman Rainey's bill provides the following:

For the registration of every person who imports, manufactures, produces, compounds, sells, deals in, dispenses or gives away opium, coca leaves or any compound, manufacture of derivative thereof.

That each person so registering shall pay special taxes ranging from \$3 a year for physicians, surgeons, dentists and veterinarians, to \$24 a year for importers, manufacturers, producers or compounders, with wholesale dealers taxed \$12 and retail dealers \$6 per annum.

That an internal revenue tax of 1 cent an ounce or fraction thereof shall be levied upon all such narcotics manufactured in or imported into this country, to be paid by the importer or manufacturer, such tax to be represented by stamps affixed to each package or container. Such tax to be in addition to any import duty.

That violations of the provisions of the act shall be punished by fine or imprisonment, or both.

The draft of the bill provides for the exception of drugs, dispensed by physicians, etc., when exact and definite regulation as to records and other specified data is observed.

At the time of this writing we are not advised relative to the extent of coöperation by pharmacists in constructing the Rainey amendment, or rather of a request for coöperation in preparing it. More frequently than ever before pharmacists are ignored in formulating enactments that largely concern them, contrary to the recommendation of President Wilson relative to seeking the advice of trades and professions that are directly interested in legislation under consideration.

We are not in position to controvert the assertions made by Congressman Rainey relative to the extent of drug addiction discovered by the draft. The statements relative to large quantities of paregoric and other related preparations may not be found so excessive when comparison is made with the number of persons involved. But the point is, pharmacists are most desirous of checking the narcotic evil; the American Pharmaceutical

Association was largely instrumental in urging earlier legislation. There are undesirables in every trade and profession even, as Mr. Rainey indicates, among medical men and, as substantiated by court records. It would seem that physicians who lend themselves to such nefarious practice have just as great an opportunity for illegal dispensing and prescribing under the proposed regulations as under the Harrison Law. They would pay a license of \$3.00, and be under less surveillance than pharmacists who are taxed \$6.00 if not \$30.00.

We are, at this writing, not prepared to give further expression but believe no hasty action should be taken and that Congressmen be importuned for further hearing and give a careful study to the provisions. To that end we advise that druggists everywhere urge delay of the legislation which for some reason is to be pushed through Congress. If then it proves a more effective means for checking traffic and prescribing well, and good. Only recently the confusion which resulted from alcohol legislation evidenced the lack of consultation with those who were qualified to give advice. The Drug Trade Conference should have the opportunity to confer with the promoters relative to this legislation.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus.

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From 2342 Albion Place, St. Louis, Mo.

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

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From Bedford, Mass.

To Sanitary Corps U. S. General Hospital,
New Haven, Conn.

HALL, WM. A.,

From 200 Griswold St., Detroit, Mich.

To 156 Ferry West, Detroit, Mich.

BRYSON, W. S.,

From Woodlawn, Pa.

To New Sheffield, Pa.

HEIDENREICH, A. C.,

From c/o Olsen's Drug Store, Des Moines,
Iowa.

To Apt. 306 Boekenhoff, 12th and High
Sts., Des Moines, Iowa.

BANDELT, C. M.,

From 1072 27th St., Oakland, Cal.

To R. F. D. No. 1, Redwood Heights Farm,
Santa Cruz, Cal.

DEWEY, A. H.,

From North Pacific College, Portland, Ore.

To 1175 East 27th St., North Portland, Ore.

- JOHNSON, I. T. E. G.,
From Tonkawa, Okla.
To Ft. Puget Sound, C. A. N. A., Wash-
ington.
- SCHWARTZ, ISRAEL,
From 503 E. 7th St., Brooklyn, N. Y.
To Bendiner & Schlesinger, New York,
N. Y.
- WAGNER, L. R.,
From 203 N. Ingalls St., Ann Arbor, Mich.
To 905 South State St., Ann Arbor, Mich.
- PATTERSON, ANNIE M.,
From 631 Euclid Ave., Baltimore, Md.
To 2900 West Lake Place., Denver, Col.
- HORN, R. P.,
From 707 East Mansur Ave., Guthrie,
Okla.
To 602 North Elm St., Guthrie, Okla.
- HOFF, K. W.,
From c/o Eli Lilly & Co., Indianapolis, Ind.
To 837 North Delmar St., Indianapolis, Ind.
- BERCOU, J. D.,
From 917 South 14th Ave., Minneapolis,
Minn.
To 937 South 14th St., Minneapolis, Minn.
- DELGADE, DR. ESTRELLA,
From Principe 19, Havana, Cuba.
To San Nicholas 245, Havana, Cuba.
- PENDLETON, C. I.,
From 87 Gardner St., Allston, Mass.
To 1301 Broadway, Oakland, Cal.
- TAYLOR, WM.,
From 515 West 157th St., New York, N. Y.
To 2355 Valentine St., Bronx, New York,
N. Y.
- RHODEHAMEL, H. W.,
From 643 East 32nd St., Indianapolis, Ind.
To 638 East 48th St., Indianapolis, Ind.
- MARIANOWSKY, J.,
From 310 South 4th St., Brooklyn, N. Y.
To 1233 Flatbush Ave., Brooklyn, N. Y.
- COLE, J. N.,
From 542 Presidio Ave., San Francisco, Cal.
To U. S. A. Ambulance Service, Camp
Crane, Allentown, Pa.
- DEAN, J. ATLEE,
From 5420 Baltimore Ave., Philadelphia,
Pa.
To 614 South 48th St., Philadelphia, Pa.
- GLISSMAN, HUGO R.,
From c/o Olsen's Pharmacy, Des Moines,
Iowa
To Doon, Iowa.
- FULLER, OLIVER F.,
From 310 West Washington St., Chicago,
Ill.
To 540 West Randolph St., Chicago, Ill.
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289 Main St., Norwich, Conn.
- DECEASED.
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Kosciusko, Miss.
MORRIS, MAX,
Macon, Ga.
SHULMYER, CHAS. J.,
Providence, R. I.
TIMMONS, GEO. D.,
Valparaiso, Ind.
- RESIDENCE UNKNOWN.
HENSUGE, WM.,
10516 Wilbur Ave., Cleveland, Ohio
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219 North Senate Ave., Indianapolis, Ind
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GRAHAM, JOHN R.,
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GRANT, JOHN H.,
Jellico, Tenn

BRITISH PHARMACEUTICAL CONFERENCE.

At the fifty-fifth annual meeting of the British Pharmaceutical Conference the following officers were elected: President, Mr. W. Kirby; vice-presidents, Mr. W. L. Currie, Mr. W. P. Evans, Mr. J. Mitchie, Mr. Edmund White, Mr. G. Whitfield and Lieutenant Colonel E. F. Harrison; treasurer, Mr. D. Lloyd Howard; honorable general secretaries, Captain H. Finnemore and Mr. R. R. Bennett; members of executive, Mr. F. W. Crossley Holland, Mr. A. Deane, Mr. F. W. Gamble, Mr. C. H. Hampshire, Mr. A. R. Melhuish, Mr. H. Skinner, Mr. T. Stephenson, Mr. H. Wyatt, and Professor H. L. Smith; honorable auditors, Mr. W. F. Gulliver and Mr. W. L. Howie.

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, \$4.00; Canada, \$4.35; foreign countries, \$4.50. Single copies, 35 cents. Remittance should be made payable to Treasurer H. M. Whelpley but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION 211 Church St., Easton, Pa., or 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

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Further information will gladly be furnished by any of the officers of the Association and members.

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OLIVER FRANKLIN FULLER
CHICAGO, ILL.

Seventy-five years in the drug business—forty-nine years a member of the American Pharmaceutical
Association

Honorary President of the American Pharmaceutical Association 1918–1919



Courtesy of H. J. [illegible]

O. F. FULLER

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. VII

OCTOBER, 1918

NO. 10

OLIVER FRANKLIN FULLER.

The Honorary President of the American Pharmaceutical Association for 1918-1919 is O. F. Fuller, of Chicago, Ill. Although only a decade of years from the centennial of his birth, he maintains an active interest in the drug business and in general affairs.

System printed an interview with Mr. Fuller in which he spoke of the changes and progress of the drug industries during the past seventy years, stressing that specialization had brought many modifications in the conduct of the business and, as a result, those engaged were well qualified in their specialty but did not acquire the general information possessed by pharmacists of an earlier day. He remarked on the fewer hours of daily work and pointed out the danger that if the free hours were not used for learning about the related tasks, which formerly belonged to the business, druggists would find that their specialty was no longer wanted or needed by society. "Then," he said, "we will be out of a business or a job with no useful money-making knowledge or training."

Mr. Fuller was born in 1829, at Sherman, Connecticut, where he received his schooling until fourteen years of age, when he entered the retail drug business in Peekskill, N. Y. Here he remained until he reached his majority, when he came to Chicago, then a frontier town. He had saved \$500.00, his father added a like amount, and with this as part of the investment the retail drug business of Fuller & Roberts was established, which is represented to-day in the wholesale drug firm of The Fuller-Morrisson Company.

In the interview referred to Mr. Fuller said: "Friends ask me 'Why don't you take a rest?' I still come down to the desk because I want to keep my mind busy—men usually don't live long after they retire and let their minds drift—because I want to see business pass new milestones in its development * * * But let us stop every now and then to look beyond the constantly narrowing limits set by the specialization which typifies to-day. It may be that we old men are too conservative for to-day's business. But the decades often carry a wise lesson."

Mr. Fuller is deeply interested in the Chicago Veteran Druggists' Association; he has helped to make history in Chicago, planned and labored in its earlier

development, passed through the experiences of the Civil War, the visitation of the great Chicago fire, and still participates in the activities of the country's second largest city.

Mr. Fuller was married in 1858 to Miss Phoebe L. Shipley, of Peekskill, N. Y.; she died a number of years ago; in 1910 he married Miss Becky Seacord, whom he had known from early girlhood.

In acknowledging Secretary William B. Day's letter, advising him of his election as Honorary President of the American Pharmaceutical Association, Mr. Fuller wrote:

"Your communication, informing me of the high honor conferred on me by the American Pharmaceutical Association, in the recent Convention, has reached me.

"It is with very real pleasure that I write to thank the Society through you, the Secretary, for the compliment accorded me on this the forty-ninth anniversary of my membership in the American Pharmaceutical Association. I feel the honor not only to be a personal one, but that by my being chosen as the recipient of this honor the Chicago Veteran Druggists' Association is receiving complimentary recognition.

"With sincere appreciation of the kindly thought which prompted the action, I am

Most sincerely yours,

(Signed)

OLIVER FRANKLIN FULLER."

E. G. E.

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EDITORIAL

E. G. EBERLE, Editor

253 Bourse Bldg., PHILADELPHIA

PHARMACY AND THE DRUG STORE.

IT can probably be said that failure, thus far, to secure the establishment of a pharmaceutical corps in the U. S. Army, after persistent and systematic efforts on the part of pharmacists, and an evident indifference on the part of Army medical men to coöperate strongly for such creation, impressed several papers of the American Pharmaceutical Association on "the separation of pharmacy from the drug business," and the same subject formed the keynote of the presidential address before the recent meeting of the American Conference of Pharmaceutical Faculties; it also influenced the report of the Committee on "Short Course Schools," of the latter organization. It is true that the incompatibility of pharmacy with many drug stocks has long been recognized, that a distinction of classes has been and is effective in some European countries, but the subject has never before been the important theme of a convention of American pharmacists.

Efforts to establish standards of respectability, or relationship between pharmacy and the side-lines of the modern drug store constitute a mistake; such comparisons are, as a rule, either unjust or unnecessary. The point simply is that pharmacy is a profession, but this does not characterize every transaction of the store. Success in a business or profession is of utmost importance; integrity and honesty are essential in both. The pharmacist, as well as the druggist, should know the fundamentals of business; experience and good common sense teach proper application of them. Pharmacy may be practiced rightly in a store wherein the sales in side-lines represent the larger volume of the business; it may be mal-practiced where only prescriptions are filled and drugs are sold. Pharmacy and the drug business reflect the man within.

Colleges of pharmacy can readily arrange their curricula and entrance requirements for the teaching of druggists and pharmacists, but they must adapt them so that they will prepare the students for their life-work. Thoroughness is an essential qualification of a druggist and pharmacist; right dealing is as mandatory in a drug store as in a pharmacy; an inefficiently trained pharmacist is not a druggist, the difference is not of degree. The opportunities for service and success are just as great in the drug business as in pharmacy; both engagements are honorable, if rightly conducted.

The present is a most opportune time for studying the practicability of establishing drug stores without pharmacy departments, because of the shortage of pharmacists; we are inclined to think that this can be brought about much more

rapidly than the separation of pharmacies from drug stores. Relatively more drug stores will be able to exist than exclusive pharmacies, which implies that in many drug stores the pharmacy departments are not productive of large direct profit. "Let us face the facts." The medical profession must become sincerely interested in the movement of developing pharmacy if the proposed plan of separating pharmacy from the drug store is to gain momentum; medical men should exhibit a far more intense interest than has so far been shown to further the efforts of pharmacists for professional recognition. They will find that the progress of pharmacy is essential to the continued advancement of medicine, or the trend may be a return to the apothecary-physician.

A reflection on the development of the modern drug store reveals that manufacturing pharmacy gave pharmacists the opportunity to increase the volume of their sales by adding sundry lines, until in many stores pharmacy became a subsidiary adjunct. The patrons failed to realize fully the value of the service rendered by the drug stores; no matter how small the sale, it was for profit in their estimation, even if it was of a postage stamp. More seriously, the public regarded the sales by pharmacists on a par with those of department store competitors; thus these became largely merchants and medicines became merchandise. Legal enactments did not greatly extend the pharmacists' privileges; medicines were sold by them under restrictions, while others sold them without legal subjection; physicians continued to dispense.

If pharmacy is to receive full recognition as a profession it must be proven that prescribing and dispensing of *materia medica* are different and not interchangeable functions, and that medicines should be prescribed to fit the case. A pharmacy should be provided with laboratories, and bacteriological products should be intelligently handled, and finally, as with other professions, pharmacists should exact a fee for professional services. These are some of the things that must be considered in framing pharmacy legislation, applicable to the change of status which has been proposed. The subject is important and deserving of serious consideration, so that the foundation for both types of drug stores may be properly laid and the two classes defined. The number of drug stores will probably soon exceed that of exclusive pharmacies, but the increase of both will likely be by elimination within established stores; on the one hand, by doing away with the prescription department and related stock, and on the other, by the installation of a laboratory, eliminating certain of the side-lines and the inclusion of others. We do not venture to predict how rapid this progress will be.

"Progress begins with the minority. It is completed by persuading the majority, by showing the reason and the advantage of the step forward, and that is accomplished by appealing to the intelligence of the majority."—*George William Curtis*.
E. G. E.

THE MENACE OF THE "PLUGGING" SCHOOL.

FAR too little attention has been given to the "plugging" institution in the past. The fact has come home to us since the entrance of the United States into the war, for, whatever else may stand in the way of recognition of pharmacists by the Government, *one* of the difficulties is the inadequate preparation of many so-called pharmacists.

There is a wide difference in the requirements of Conference colleges as well as the product which they turn out but when one considers these other institutions, which do not even deserve the title of school, the difference becomes vastly greater. For some years a score or more of these so-called schools have been in existence. The number of young men and women, who have prepared for board examinations by spending from six weeks to three months in one or the other of them, runs into the thousands. They can enter with no preliminary education whatever and, when they have passed a board examination, they are free to practice on an unsuspecting public.

Standard colleges have probably shown too much indifference. So far as harm to the college itself is concerned they might be ignored because few who are attending them could be admitted to a college. However, that is altogether too self-centered and short-sighted an attitude to take. Besides the liability to error due to incompetence and the consequent menace to the public, these people obtain their registration with such small expenditure of time and labor and money that they are willing to work for much smaller remuneration than college-trained men and this results in a competition that is quite unfair. In some states a class of men have been attracted to this as a means of getting the necessary document that would permit them to operate a business of more or less questionable reputation in the guise of a drug store, thus adding another disagreeable feature to the competition. Now we are beginning to comprehend the fact that these institutions have had much to do with the attitude of other professional people in contending that pharmacy is solely a business.

Prerequisite laws have been enacted in several states but the movement has been far too slow. It is high time that we waken to the danger of permitting these institutions to exist longer. No fear need be felt that an insufficient number of young men and young women will take up the study of pharmacy to supply the necessary helpers. It doesn't work that way. It has been demonstrated conclusively that real pharmacy attracts a greater number and a superior class of young people when they know that they are not to have the competition of untrained workers and that they will be associated with men and women who have ideals and a higher valuation of the services of pharmacy. ZADA M. COOPER.

SCIENTIFIC SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION.

ABSTRACT OF THE MINUTES OF THE SESSIONS HELD IN CHICAGO, ILL., AUGUST 14,
15 AND 16.*

Owing to the absence of the officers, the first session of the Scientific Section, A. Ph. A., was called to order by A. H. Clark of Chicago, Wednesday, August 14, at 9:30 A.M. Nominations for temporary Chairman and Secretary were called for; there being only one nominee for each office, Edward Kremers of Madison, Wis., and A. G. DuMez of Washington, D. C., were respectively elected Chairman and Secretary of the Sessions.

Address of Chairman W. W. Stockberger:

TO THE SCIENTIFIC SECTION, A. PH. A., CHICAGO MEETING, 1918:

Your Chairman regrets exceedingly that active duties in Washington render it impossible for him to attend the meeting of the Scientific Section and to discharge in person the responsibility with which he has been honored by you. The program is crowded with the titles of papers by members who are present with the expectation of reading them before you, and under the circumstances it seems quite inappropriate for the Chairman to submit a formal address to be read through the courtesy of some member of the Section. However, there is one important matter which your Chairman wishes to lay before you, and that is the desirability of taking definite steps to stimulate to the utmost, research on botanic drugs. In the case of several plant drugs it has recently been shown that the traditional methods for their collection and preparation do not produce a drug of the highest therapeutic value. Upon thorough investigation it is highly probable that the number of plant drugs for which the same is true will prove to be surprisingly large. The conditions arising as a result of the war have greatly stimulated drug growing in this country and no good reason exists for the failure to insist upon suitable control measures in connection therewith in order that the drugs produced may be of standard quality. However, further research is necessary to establish the most desirable methods to use in collecting and preparing the product for the manufacturer.

The shortage in American botanicals has developed another phase of this question. Quite recently a crude drug firm has circularized every State Department of Agriculture in the country, requesting that publicity be given to the desirability of collecting indigenous drug plants. This may result in the collection of a vast amount of material by persons who have no accurate information regarding proper methods of collection and preparation, and perhaps none at all regarding the effect of wrong treatment upon the value of the material itself. The labor situation, also, is causing additional changes in the personnel of the collectors, and the need is therefore great for definite information on all phases of drug collection, compiled in simple form and made available for wide distribution. This unusual opportunity to improve the standard of quality of our native crude drugs should not be overlooked.

Although a vast amount of labor would be required, it is believed that the determination of all the factors which favorably or unfavorably affect the intrinsic value of the more important botanicals, would yield results of great significance. The logical place to carry on the line of research here indicated would seem to be in our colleges of pharmacy. Already about twenty of these institutions have established drug gardens which will afford much of the necessary material. In addition many native botanicals are within easy reach of almost every one of these colleges. Quite apart from its general scientific value, the type of research under discussion would enrich and facilitate the educational work of the colleges and bring to them recognition as centers of specific and reliable information regarding botanic drugs cultivated or collected in the region where they are located.

These suggestions which especially relate to the highly important vegetable *materia medica* are respectfully submitted for your consideration.

W. W. STOCKBERGER,
Chairman.

Washington, August 9, 1918.

On motion the Chairman's address was received for publication in the minutes of the Section.

* Papers with discussions will be printed apart from the minutes

Reports of Committees were called for: Chairman Frank R. Eldred of the Committee on Ebert Prize, asked for further time, which was granted; the report of the Committee on the Quality of Medicinal Products was received. (The introductory of the report is printed on p. 817, September issue, JOURNAL A. PH. A.) The report of the Committee on Drug Cultivation follows:

REPORT OF COMMITTEE ON DRUG CULTIVATION.

At the meeting of this Association held in 1917, the Scientific Section adopted a motion to appoint a Committee to promote coöperation in matters relative to the cultivation of drugs, and to encourage the dissemination of uniform information concerning this subject. Dr. W. W. Stockberger was appointed Chairman of this Committee, and authorized to select four additional members of the Committee. Upon request, Dr. F. J. Wulling, Dr. Edw. Kremers, Dr. F. B. Kilmer, and Prof. A. W. Linton consented to serve.

No meetings of the Committee have been held, but the Chairman has kept in touch with the other members by correspondence. On account of the positions held by them, each member of the Committee receives a voluminous correspondence regarding the cultivation of plant drugs, and through this medium it has been possible to enlighten thousands of inquirers who, from statements in the public press and often through agricultural and other societies, had obtained the impression that there was a vast fortune awaiting them in the cultivation of drugs. During the year the Chairman has delivered a number of illustrated lectures on drug growing, and on each occasion has endeavored to inculcate the idea that the cultivation of drugs for profit is a serious business proposition which is subject to even greater difficulties and risks than most agricultural enterprises.

Since our last meeting there have appeared in the pharmaceutical press and elsewhere several articles which parallel the line along which this Committee is working. Some of them are as follows:

Army, L. W., "Is Drug Plant Growing Practical?" *Garden Magazine*, Dec. 1917.

Farwell, O. A., "The Cultivation of Medicinal Plants." *Druggists Circular*, Apr. 1918.

Fuller, H. C., "Shall the Amateur Attempt to Grow Drugs?" *Druggists Circular*, Jan. 1918.

Kraemer, H., "Medicinal Plants—Present and Future Supplies." *Am. Jr. Phar.*, 90. No. 6, 1918.

Stockberger, W. W., "Some Plain Facts about Drug Cultivation." *Druggists Circular*, Mch. 1918.

Stockberger, W. W., "Production of Drug Plant Crops in the United States." *Yearbook, U. S. Department of Agriculture*, 1917.

Among the numerous individuals who manifest an interest in drug cultivation, several classes may be distinguished:

First, and by far the largest class, those who, without experience, expect an enormous profit with a minimum of effort—they should be disillusioned.

Second, physicians or pharmacists who wish to grow drugs in an experimental way for their own information or recreation—they should be encouraged.

Third, educators in our Colleges of Pharmacy who are interested in increasing their educational facilities—they should have our hearty support.

Fourth, those who are engaged in this work in a large and systematic way on a definite business basis—they should have our active coöperation and assistance.

It should be evident to all that the indiscriminate "boosting" of drug cultivation will ultimately result only in disaster. In our desire to foster drug growing in this country, we should not fall into the error of overestimating its relative importance in comparison with other agricultural enterprises. Notwithstanding the fact that the cultivation of certain valuable drugs now seems desirable and necessary, we must remember that the demand is and will continue to be relatively limited. If this industry is to be developed on a sound commercial basis and be in position to meet the competition which it seems certain may be expected after the war, its limitations must be recognized and the necessary steps taken to insure its continuance along rational lines. The respective interests of the producer, dealer and manufacturer must be much better coördinated if drug cultivation in this country is to progress in the face of changed commercial conditions. Our duty to our country makes it imperative that we forestall any

future situation in our drug supply, such as that which obtained at the beginning of the war in 1914, by giving our individual support to an enterprise which affords a practical means of developing supplies of drugs in national emergencies as well as in times of peace.

Respectfully submitted,

W. W. STOCKBERGER,
Chairman.

Washington, D. C., August 8, 1918.

The report was referred for publication in the minutes of the Section.

The following papers were read and referred for publication:

"Effect of the War on Drug Importation" (illustrated), by C. L. Alsberg and C. O. Ewing.

"Couch Grass *vs.* Bermuda Grass" (illustrated), by E. N. Gathercoal.

"Histology of Brazilian Jalap" (illustrated,) by O. A. Farwell.

"Brazilian Jalap," by W. L. Seoville. (See p. 785, September issue of the JOURNAL A. PH. A.)

"*Piptostegia Pisonis*," by C. O. Ewing.

"Fluidextract of Squill," by R. I. Grantham and H. C. Colson, Jr.

"Variations in Cinchona Bark and Its Preparations," by Hugo H. Schaefer.

Nominations were presented by the Nominating Committee.

The following papers were read and referred for publication:

"Research and the U. S. Pharmacopoeia," by A. H. Clark.

"Assay of Hypophosphites," by J. P. Snyder and J. K. Dickerson.

The first session of the Scientific Section was then adjourned.

SECOND SESSION.

The second session of the Scientific Section, A. Ph. A., was called to order by Chairman *pro tem* Edward Kremers at 2.00 P.M., Thursday, August 15. The following papers were read and, after discussion, referred for publication:

"Tablets for the Disinfection of Drinking Water," by Bernard Fantus.

"Tethelin, the Growth-controlling Principle of the Anterior Lobe of the Pituitary Body," by R. P. Fischelis.

A paper by the same author on Bismuth Emetine Iodide was read by title.

The following papers were read, discussed and referred for publication:

"Analysis of Tablets of Unknown Composition, an Example," by L. F. Kebler.

"Standardization of Fiftieth Normal Potassium Hydroxide," by W. J. Thompson and J. P. Snyder.

"Commercial Cultures of Bulgarian Bacillus," by E. B. Carter.

The second session of the Scientific Section was then adjourned.

THIRD SESSION.

The third session of the Scientific Section, A. Ph. A., was called to order by Chairman *pro tem* Edward Kremers, Friday, August 16, at 9.30 A.M.

Chairman F. R. Eldred of the Committee on Herbert Prize reported that the Committee had decided that none of the papers of last year's meeting met the requirements under which the prize is to be awarded, and therefore no recommendation for award was made. The Section approved of the report.

The following papers were read and, after discussion, referred for publication:

"The Commercial Growing of Some European Drugs," by E. L. Woodhams.

"Description of a Trip through the Drug Raising Area of the South—An Illustrated Lecture," by C. O. Ewing.

"Criticisms and Comments on N. F. IV," by Jacob Diner.

"Nitrogen, a Dominant Factor in the Affairs of Man," by L. F. Kebler.

"The Effect of Alcohol on the Activity of Liquor Hypophysis," by Paul S. Pittenger.

"The Deterioration of Tincture of Digitalis," by Paul S. Pittenger.

"Some Experiments on Rhythmic Precipitation" (illustrated), by Curt P. Wimmer.

The following papers were read by title and referred for publication:

"Problems of the Manufacture of Medicinal Chemicals, Directly Resulting from War Conditions," by B. L. Murray.

"Problems of the Manufacturing Pharmacist, Directly Resulting from War Conditions," by C. H. Briggs.

"An Unusual Oil from *Monarda Punctata*," by Max Phillips.

"The Volatile Oil of Canada Balsam," by Max Phillips.

"Camphene in Hemlock Oil," by E. V. Lynn.

"Ozonides and Peroxides of the Terpenes as Therapeutic Agents," by E. V. Lynn.

"Oleoresin of *Pinus Ponderosa*," by E. R. Miller and E. V. Lynn.

ELECTION OF OFFICERS.

The election of officers resulted as follows:

Chairman, E. N. Gathercoal, Chicago, Ill.

Secretary, Hugo H. Schaefer, New York, N. Y.

First Vice-Chairman, C. B. Jordan, Lafayette, Ind.

Second Vice-Chairman, C. O. Ewing, Washington, D. C.

The officers were installed and Chairman Edward Kremers thanked the members for their coöperation, and expressed his opinion that the work accomplished and papers presented were eminently satisfactory. Chairman E. N. Gathercoal, in assuming the office, thanked the members for the honor conferred on him by the election. A vote of thanks was tendered the temporary officers, and thereafter the Scientific Section adjourned.

THE EFFECT OF ALCOHOL ON THE ACTIVITY OF LIQUOR HYPOPHYSIS.*

BY PAUL S. PITTINGER.

Through the statements of the salesmen of one of the large manufacturers of glandular products the impression has become quite general that traces of alcohol destroy the physiologic action of liquor hypophysis.

In other words, they claim that very often when the physician does not obtain the desired results from an injection of liquor hypophysis, the failure is due to the fact that the physician sterilized the hypodermic syringe with alcohol and that the small amount of alcohol left in the syringe destroyed the action of the extract.

As the above statements are made without the support of experimental data I concluded to carry out a series of experiments in order to determine whether or not small amounts of alcohol would influence in any way the activity of the extract as shown by tests upon the blood pressure and the isolated uterus.

The experiments were carried out in two different ways. In some of the experiments the syringe was first washed out with alcohol after which the extract was drawn up into the syringe, and then immediately injected. In the rest of the experiments a small quantity of alcohol was added to the extract and the solution allowed to stand one-half hour before injecting.

The results of eight experiments upon the isolated uterus and of ten experiments upon the blood pressure show that in every case exactly the same effects

* Read before the Scientific Section, A. Ph. A., Chicago meeting, 1918.

were produced by the extract to which the small amount of alcohol had been added, as were produced by the plain extract.



FIG. 1.—Shows that small amounts of alcohol do not influence the activity of liquor hypophysis upon the isolated uterus. A.—0.025 mil liquor hypophysis. B.—0.025 mil liquor hypophysis to which has been added 0.05 mil alcohol.

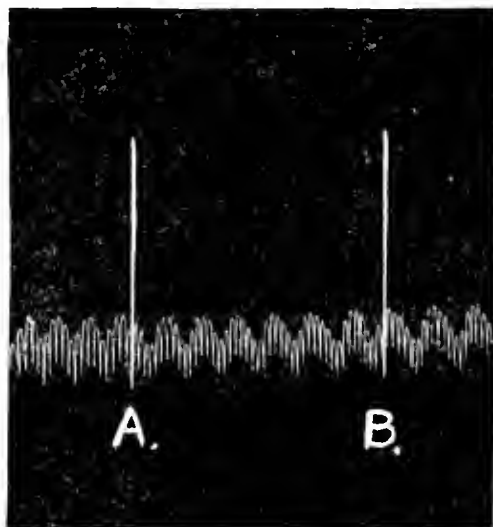


FIG. 2.—Shows that small amounts of alcohol do not influence the effects of liquor hypophysis upon the blood pressure. A.—0.2 mil liquor hypophysis. B.—0.2 mil liquor hypophysis to which has been added 0.05 mil alcohol.

Conclusion.—Small amounts of alcohol do not destroy the physiologic activity of *Liquor Hypophysis*.

PHARMACODYNAMIC LABORATORY,

H. K. MULFORD CO.,

July 1918.

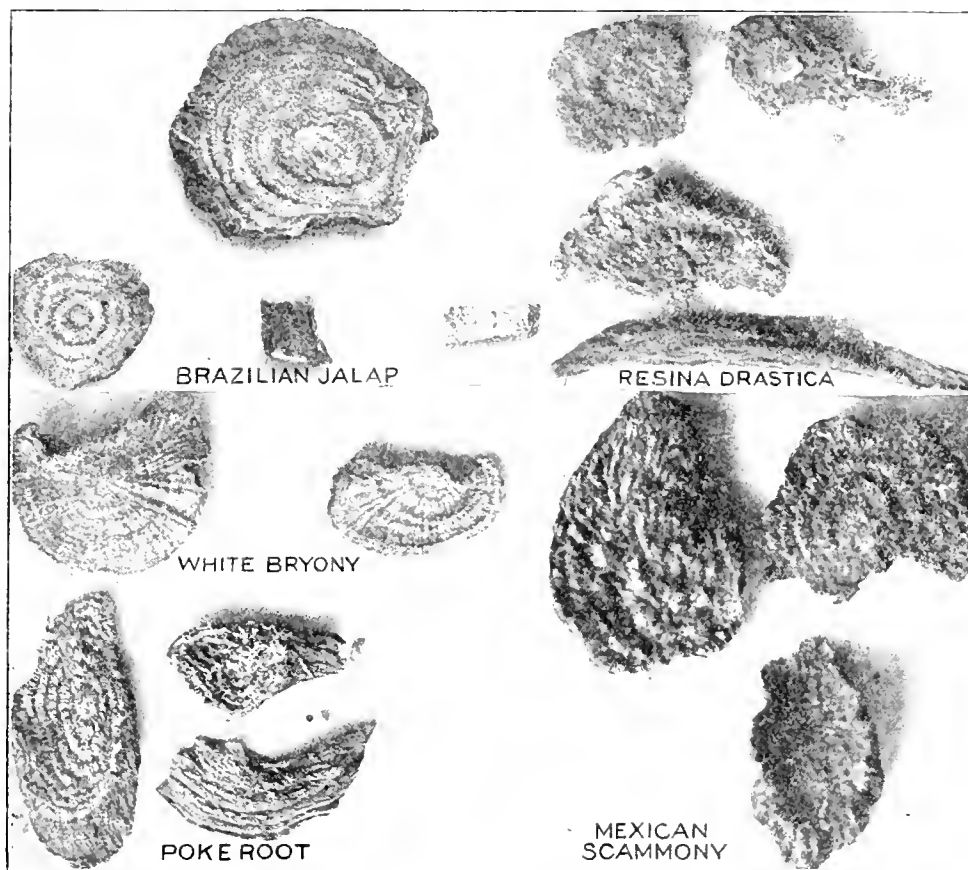
BRAZILIAN JALAP AND SOME ALLIED DRUGS.*

BY OLIVER ATKINS FARWELL.

In the *Pharmaceutical Journal* for November 27, 1915, Mr. E. M. Holmes described a root known as Brazilian Jalap, which he refers to the *Piptostegia Pisonis* Mart. This species was described by Martius in his *Systema Materia Medica Brasiliensis*, page 78, in 1843. In addition to this and the typical species, *P. Operculata* Reichb., Martius described and listed *P. Gomesii*. In the *Flora Brasiliensis* Meisner reduced the latter to the limbo of synonymy, placing it under *Operculina Convolvulus* but made no mention of *P. Pisonis*; since this so-called species was not mentioned in the *Flora Brasiliensis*, the inference to be drawn therefrom is that it was thought to be invalid, just a synonym of *O. Convolvulus*. At different times this species has been included under *Convolvulus* or *Ipomoea*, but at present it is considered to constitute a genus distinct from either, the oldest

* Read before Scientific Section, A. Ph. A., Chicago meeting, 1918.

name for which is *Operculina*. If my deductions as above outlined are correct the proper binomial for the Brazilian Jalap is *Operculina macrocarpa* (Linn.) Urban. The names under which this drug is commonly known in Brazil are *Batata de Purga* and *Batata purgante*. *Tapioco de Purga* is a product derived from the root. The generic characters of *Operculina* are the pear-shaped calyx, large imbricated sepals chartaceous in fruit, broadly campanulate corolla tube, and the twisted anthers. The plant is a climbing shrub with winged stems, palmately 3-7-divided leaves,



BRAZILIAN JALAP AND SOME ALLIED DRUGS.

peduncles about as long as the leaves and white campanulate flowers. Mr. Holmes described the root as follows:

"The root occurs in commerce in the form of transverse circular sections averaging about $1\frac{1}{2}$ -2 inches in diameter, and about $\frac{1}{4}$ inch in thickness, marked with several concentric rings, and, save for its pale grayish brown tint and the presence of numerous dots of translucent pale resin on the surface, bears considerable resemblance to White Bryony root."

An effort was made to obtain a small supply of the root; in due course of time it was procured from London. It agreed in all points with the description quoted above. We may add, however, that it has a thin dark brown or blackish brown

cork, the surface is not fibrous, and that the phloem and cambium are shrunken below the surface of the xylum and cortex; that its resemblance to the cross-sections of Mexican Scammony or of Poke is as equally, if not more, pronounced as to that of White Bryony.

The root probably is a large tuberous root and is composed chiefly of soft tissues. The cambium forms complete circles and together with the phloem are, in the commercial drug, noticeable as dark concentric circles shrunken a little below the level of the surrounding tissues. In the sections observed, the tissues were all of secondary growth; that is, spiral or annular tracheae usually associated with primary meristem could not be detected. The center of the root in the smaller sections is nearly solid xylum, there being four narrow strands of secondary cortex, thus making the structure of the root a tetrarch. The larger sections are very similar but may have less xylum and more cortex. The cambium of the collateral bundles soon ceases its activity and the cortex gives rise to another meristematic region beyond the phloem and this operation is continued repeatedly, producing in this unusual way its growth in thickness. The xylum forms a very small bundle of few vessels and these are rather widely separated, forming an interrupted circle with wide spaces between the bundles. The medullary ray is usually one cell, sometimes two cells, in width. The vessels of the bundle are reticulated tracheae, often 0.13 mm. in diameter with walls 0.008 mm. thick, and these constitute the greater portion of the strengthening tissue of the root; tracheides and wood fibers are frequent in the central circles but absent or only occasional in the outer ones. Rosette crystals of calcium oxalate are frequent just internal to the cork, scattered through the cortex, and form crystal fibers close to the xylum. Starch is present only in a very small amount; the grains are simple and range from 0.002 mm. to 0.024 mm. in diameter. Bast fibers are absent or at least were not detected; but most of the bast parenchyma and some of the cells of the medullary rays and secondary cortex, while retaining comparatively thin walls, are stained brown with chloro-iodide-of-zinc, indicating suberization or cutinization. The cells of the cortex are more or less polygonal and average about 0.044 mm. in diameter, the walls are thin and the air space between the cells is very small. The cork layer is about 0.123 mm. thick and is composed of a series of thin-walled, more or less tabular cells (0.008 mm. by 0.048 mm.), only the outermost series having thickened cell walls. The tracheides average about 0.44 mm. in length, 0.026 mm. wide, and have a wall about 0.003 mm. in thickness. The wood fibers have oblique pores and range from 0.62-0.78 mm. in length, 0.013-0.020 mm. wide, and have a lumen varying from $\frac{1}{5}$ - $\frac{3}{4}$ the width of the fiber.

RESINA DRASTICA.

The drug that has come to us under this name is of unknown origin. It comes in both transverse and longitudinal sections of the root, the color is a dirty brown or dark grayish brown, much darker than the Brazilian Jalap. In the cross-sections the wood strands project as much as 2 mm. beyond the surface giving a rough fibrous aspect to the section; the bundles are irregularly scattered through definite concentric zones. In the longitudinal sections the strands appear on the surfaces as smooth ridges in more or less parallel but interrupted lines and frequently extend beyond the end of the section as coarse fibers up to 3 cm. in length

and 3 mm. in thickness. From the general resemblance of this root to that of Brazilian Jalap and to that of Mexican Scammony, I would hazard the guess that it is from some plant closely allied to them and consequently from the morning glory family, the *Convolvulaceae*.

W. L. Scoville, who is working out the chemistry of the drug, has informed me that in so far as he can tell from the limited amount of work he has been enabled to give to it, it does not differ materially from the resin of Mexican Scammony except in its yellow color. Under the microscope the root structure differs from the Brazilian Jalap in having no rosette crystals or crystal fibers, in having a superabundance of starch, the grains being of a more uniform size of from 0.013 mm.—0.018 mm., the vessels being chiefly of the pitted type, wood fibers are plentiful and there is some bast fiber. In Brazilian Jalap, oil with refractive inclusions, perhaps oleoresin, was scarce and where present was arranged in masses, rather than in drops, in longitudinal lines, mostly in connection with the medullary ray cells; but most of the cells of the samples I had for examination were empty, while on the other hand in the *Resina Drastica* samples the cells were well filled with the products of metabolism and as in the case of the starch there was a superabundance of large drops of oil with its inclusions throughout the cortex. Wood fibers in this drug measure for the most part from 0.704 mm. to 0.892 mm. in length, about 0.02 to 0.03 mm. wide, the lumen being about $\frac{1}{3}$ the width of the cell.

MEXICAN SCAMMONY.

This drug is derived from the large tuberous roots of *Ipomoea Orizabensis* (Pell) Ledenois and is also known as Male or Orizaba Jalap. It resembles very closely the drug described above as *Resina Drastica*, but is somewhat lighter in color, extremes being as light on one hand as the Brazilian Jalap and as dark on the other as *Resina Drastica*; it is as fibrous as the latter but the strands usually are finer, sometimes longer, more numerous, and arranged more regularly in concentric circles or zones. Under the microscope it differs in no tangible way from the *Resina Drastica*. The resin obtained from this is black; whether or not the difference in the colors of the resins of this and of the *Resina Drastica* can be correlated with specific difference in the plants producing them can not now be determined.

DEPARTMENT OF BOTANY,
PARKE, DAVIS & CO.,
DETROIT, MICH.

PIPTOSTEGIA ROOT, PIPTOSTEGIA PISONIS MART., SO-CALLED "BRAZILIAN JALAP."*

BY CLARE OLIN EWING AND JOSEPH F. CLEVINGER.

An importation recently offered for entry as "Jalap" proved, upon investigation, to be the root of *Piptostegia Pisonis* Mart., which Holmes¹ refers to as "the ordinary jalap of Brazil." We are also in receipt of a personal communication from Mr. H. M. Curran, a forester in Brazil, in which he quotes a Bahai druggist

* Contribution from Pharmacognosy Laboratory, Bureau of Chemistry, Department of Agriculture, Washington, D. C.

¹ "Brazilian Jalap," *Pharm. J.*, 95, 671 (1915).

as stating "that it is jalap of this region." The product, however, is not a true jalap, and we have preferred to call it *Piptostegia* root, in order to avoid, if possible,



FIG. 1. *Piptostegia Pisonis* $\times 1/2$

ble, a confusion of names in the trade, such as exists, for example, in the case of Scammony and the so-called Mexican Scammony. *Piptostegia* root occurs in commerce in the form of transverse circular or oval sections, varying from about 3 to 8 cm. in diameter and from about 0.3 to 0.8 cm. in thickness. The pieces are marked with several concentric rings, and, aside from the pale grayish brown tint and the presence of numerous dots of translucent pale resin on the surface, bear considerable resemblance to commercial white bryony root (Fig. 1). Holmes has already (1915) noted the appearance of this drug upon the English market, and has stated that "Brazilian jalap has evidently for some time past been imported into Germany as cheap source of jalapin—i. e., the portion of jalap resin which is insoluble in ether." Experiments made upon his sample by Passmore showed "over 20 percent of resin answering to all of the B. P. and

U. S. P. (VIII) tests for the resin of true or Vera Cruz jalap, but only 0.85 percent is soluble in ether." Holmes concludes that: "As a source of jalapin (resin of jalap insoluble in ether) it is therefore twice the value of the Vera Cruz jalap, since it contains twice the standard quantity of resin required by the B. P."

Some preliminary experiments, while confirming Passmore's report as to the resin content of *Piptostegia Pisonis*, and indicating that the drug possesses considerable cathartic power, yet show clearly that the resin is quite dissimilar to that of jalap, and that the term "jalapin" is incorrectly applied to it.

According to Power and Rogerson¹ "the chief portion of jalap resin which is insoluble in ether" is "commonly designated as 'convolvulin,'" although "in English pharmacy the portion of jalap resin which is insoluble in ether is still frequently designated by the original and more appropriate name 'jalapin.'" The latter term, however, is now more commonly employed to denote the resin of Scammony and of Mexican Male jalap (*Ipomoea Orizabensis* Ledanois), both of which are largely soluble in ether. The resin of *Piptostegia* root, it is true, is mostly insoluble in ether, but the following experiments clearly demonstrate that the term "jalapin," indefinite as this term is, is improperly applied to it.

Ten grammes of *Piptostegia* root in No. 60 powder, when assayed by the U. S. P. method for jalap, yielded 2.3 grammes of resin, or 23 percent. A larger amount of the resin was then prepared according to the U. S. P. method for the preparation of resin of jalap. The product was light tan colored, amorphous powder

¹ "Chemical Examination of Jalap," *J. Am. Chem. Soc.*, 32, 86 (1910).

which complied with all the U. S. P. requirements for resin of jalap, with the exception of a slightly excessive acidity and the formation of a dirty greenish solution in five parts of ammonia water (10 percent). It may, furthermore, be distinguished from the resin of jalap by means of the specific rotation of the respective purified resins, as suggested by Guignes¹ and by means of the method of fractional extraction with various solvents, as employed by Power and Rogerson in their work on various convolvulaceous resins.

The specific rotation of the resin of *Piptostegia* root, purified by treatment with animal charcoal according to the method of Guignes, proved to be -48.5° , whereas that of true resin of jalap is reported to be in the neighborhood of -36° or -37° .²

Further confirmation that the resin from *Piptostegia* root is not identical with that obtained from jalap, was obtained by a fractional extraction of the resin according to the method followed by Power and Rogerson in their work upon a number of convolvulaceous resins. For the purpose of comparison our results are tabulated, together with those obtained by Power and Rogerson in their examination of resins of jalap (*Exogonium purga* Benth),³ scammony (*Convolvulus scammonia* Linne),⁴ "Mexican Scammony" (*Ipomoea Orizabensis* Ledanois),⁵ and common morning glory (*Ipomoea purpurea* Roth),⁶ all of which contain active purgative resins.

PROPORTION OF RESINS EXTRACTED BY VARIOUS SOLVENTS, AND SPECIFIC ROTATION OF THE PURIFIED RESINS.

| | <i>Piptostegia</i> Root. | Jalap. | Scammony. | Mexican Scammony. | Morning Glory. |
|----------------------------------------------------------|-----------------------------|-----------------|------------------|----------------------|-------------------|
| Petroleum (b. p. 40° - 60°) | 2.1% | 1.9% | 4.5% | 6.2% | 8.0% |
| Ether | 5.4% | 9.7% | 92.5% | 64.8% | 7.3% |
| Chloroform | 73.4% | 24.1% | 0.4% | 0.6% | 9.8% |
| Ethyl acetate | 14.2% | 22.0% | | 24.8% | 23.8% |
| Alcohol | 4.7% | 38.8% | 1.8% | 2.3% | 49.0% |
| Specific rotation | -48.5° | -37.0° | -19.87° | -23.05° | -50.95° |

An inspection of the above figures shows the dissimilarity of the resin of *Piptostegia* root from all the other convolvulaceous resins noted, the proportion extracted by chloroform being especially remarkable.

One-half gramme and one gramme samples of the crude resin were submitted to Dr. Schwartze, of the Pharmacological Laboratory of this Bureau, who administered them to two dogs, weighing about 15 kilos each. The larger dose produced emesis after about three-quarters of an hour, the dog showing no other symptoms, and no cathartic action was obtained. The other dog, however, retained

¹ "Résines de Scammonée," *J. pharm. chim.*, [6] 22, 246 (1905). "Analyse des résines de scammonée," *Bull. soc. chim.*, [4] 3, 877 (1908).

² Guignes: *Loc. cit.* Cowie: "Optical Rotation in the Assay of Jalap, Scammony Orizaba and Tampico Resins," *Pharm. J.*, 82, 89 (1909). Power and Rogerson: *Loc. cit.*, 85.

³ *Loc. cit.*, 85.

⁴ "Chemical Examination of Scammony Root and of Scammony," *J. Chem. Soc. Trans.*, 101, 402-3 (1912).

⁵ "Chemical Examination of the Root of *Ipomoea Orizabensis*," *Ibid.*, 101, 8 (1912).

⁶ "Chemical Examination of *Ipomoea purpurea*," *Amer. J. Pharm.*, 80, 254 (1908).

the smaller dose, which produced catharsis within about four hours, the movements continuing for two days at about the rate of two or three per day.

Although lack of sufficient material has prevented us at the present time from making an extensive chemical study of this resin, similar to the investigations by Power and Rogerson of the other convolvulaceous resins noted above, we have deemed the facts thus far obtained to be worthy of record, inasmuch as they may serve to bring to the attention of the pharmaceutical and medical professions in this country a source of a new cathartic convolvulaceous resin of promising usefulness.

BORAX AND BORIC ACID.*

BY H. L. HARRIS.

The early history of borax is vague and uncertain. The word is of Arabic origin, and, as far as known, dates back only to the seventh century. Borax first came from the East. It is believed by many that it was brought by caravan from beyond China by way of Babylon and Palmyra to the Mediterranean ports, before the Christian era.

Sir Edward Bulwer Lytton, in "The Last Days of Pompeii," bears testimony to the value of borax in the days of the Republic. "Borax," says Sir Edward, "was largely used by Nero and his slaves nearly 2,000 years ago and Pansa deeply regretted that he was not rich enough to buy borax to cover the arena after the death of the combatants in the fight between Lydon and Tetrades."

It is only within the last three centuries that the chemical nature of borax has been understood. The green flame imparted to alcohol by free boric acid was first noticed by Geoffroy, a celebrated chemist, in 1732. In 1748 Baron discovered that borax was a sedative salt and soda. In 1818 Count Larderel discovered how to prepare boric acid from the lagoons of Tuscany and made a princely fortune by it. This boric acid was shipped to England and France and converted into refined borax by boiling in large pans and crystallizing in vats. About fifty years ago borate of lime was discovered in Chile, which also found its way to England. As far as is known, borax is found only in three States of the U. S., California, Nevada and Oregon.

The borax deposits in California are adjacent to the portion of the Mojave Desert called Death Valley. The history of Death Valley is found only in tradition.

In the year 1850 the number of parties of emigrants bound for California from the Eastern States was so great that their trains of wagons formed almost a continuous procession from the Missouri River to Salt Lake City, some going on the route which was afterward followed by the Central Pacific Railroad, while the rest struck down through Utah, Nevada and Southern California, through the Cajon Pass, for the regions of which Los Angeles was then, and is now, the metropolis. On reaching Salt Lake they struck off to the south, because the northern, or Truckee River, route had been traveled so much that feed and fuel (the land being a desert) were scarcer than to the south. There was nothing unusual about

* Parts of a paper read before Scientific Section, A. Ph. A., Indianapolis meeting, 1917.

the move, however, for a good many parties did the same thing, traveling along the trails leading near the west bank of the Colorado River for a few hundred miles, and then striking across the Desert, by way of several well-known springs, to the Mojave River, that sinks in the sands of the Mojave Desert.

Article after article of household furniture and everything not necessary for immediate use was cast aside to lighten the load and the women, as well as the men, walked beside the wagons rather than burden the worn-out cattle. Many of these pioneer prospectors lost their lives in the Mojave Desert, which is the reason it is called by the gruesome name "Death Valley."

The U. S. Weather Bureau on July 10, 1915, reported as follows:

"The mercury in Death Valley stood at 134 degrees in the shade. This is the hottest shade temperature ever recorded in the open air with standard instruments and according to improved methods of exposure in any part of the world."

This distinction as the hottest place on earth officially and unofficially corroborates the words of daring prospectors. Death Valley is one of the mysterious spots on the outside of this little planet.

In California, borax was first found in what was called "cotton ball" deposits. Depressions in the ground at some time had been filled with water containing borax in solution. When this water evaporated there were formed little balls of earthy impurities and borax. These so-called "cotton balls" were gathered and refined. Such deposits, however, were soon exhausted and scientists realizing the fact that the borax in the water came from the hills, prospected them and located well-defined veins of borate material.

As there were no railroads in Death Valley at the time of the discovery of borate material some method for transporting the ore to the railroad station had to be found. It was then that the now famous 20-Mule-Team was absolutely essential. The huge wagons drawn by these mules would hold a car load, and in the early days it took three weeks to make a round trip. Later, however, when nearer deposits were located, the trip could be made in a day.

The ore as found in California is colemanite, a crystalline borate of lime, found in volcanic deposits on the east side of the Calico Mountains at the edge of the Mojave Desert, California. The boric acid content of colemanite varies. The deposits are in two principal beds, each about 5 feet thick and 50 feet apart. These beds have been mined to a depth of 500 feet. After mining the colemanite is transported over land to Bayonne, N. J., where it is refined ready for market.

Borax is made by heating the pulverized colemanite with a solution of sodium carbonate, forming a soluble sodium borate which crystallizes. This solution is run into large tanks in which are suspended iron rods. As the solution cools the borax crystals form upon the rods. It is then run through a scalper. Large crystals are sold as such and small crystals are ground into powdered or granulated forms.

COMMENTS AND SUGGESTIONS ON THE USE OF GLYCERIN IN OFFICIAL PREPARATIONS.*

BY BERTHA MUELLER.¹

Within recent months considerable has been said and written on the conservation of alcohol, sugar and glycerin and, indeed, the subject is a timely one. While it is quite gratifying that the Government does not for the present consider it essential that the pharmacists of the country should be called upon to help in the conservation of these commodities, the time will no doubt come when we shall have to do our bit along these lines. Therefore, it will not be amiss to have worked ahead and tried out some formulas and suggestions given from time to time in the drug journals.

It is well known to every pharmacist that the use of these articles is very essential in the manufacture of pharmaceutical preparations, yet the amount required in a good many instances could be materially lessened. Especially is this true of glycerin where it is merely used as a sweetening agent, and there are a number of such instances among the official formulas.

Glycerin, then, being the chemical that can in many instances be more readily dispensed with than either alcohol or sugar, and at the same time the chemical the Government is in direct need of most, it occurred to the writer that a trying out of some of the official formulas with a view to reducing or, where permissible, omitting the glycerin entirely, might prove of interest. The following are a few preparations that have been tried out with that object in mind:

ELIXIR CALCIUM AND SODIUM GLYCEROPHOSPHATES N. F.

There appears to be really no good reason why the glycerophosphates should be mixed with so much aromatic elixir and glycerin as is the case in this elixir, for they do not taste badly and dissolve most readily and keep well in water having about one percent of lactic acid or a half percent of citric acid added to it. In our experience we found phosphoric acid unsatisfactory. Any aromatic water should serve to make a splendid vehicle for them. If, however, an elixir is preferred, the official formula modified as follows makes a very nice elixir, and one that keeps well:

| | |
|-------------------------------|---------|
| Sol. Sodium Glycerophosphate | 25.00 |
| Calcium Glycerophosphate..... | 8.75 |
| Lactic Acid..... | 10.00 |
| Aromatic Elixir..... | 500.00 |
| Distilled Water to make..... | 1000.00 |

GLYCERINATED ELIXIR OF GENTIAN N. F.

With an official Compound Tincture of Gentian and an Infusion of Gentian, both of which are splendid preparations in every way, there seems to be little excuse for an elixir of that drug. And it is particularly unfortunate that the glycerinated elixir should be so popular, for it is very costly on account of the high percent of glycerin in it, which does not seem to serve any real purpose.

* Read before the Section on Practical Pharmacy and Dispensing, A. Ph. A., Chicago meeting, 1918

¹ Assistant Pharmacist,ankenau Hospital, Philadelphia, Pa.

Furthermore, the gentian content is so small that it can not possibly be of much value as a bitter tonic. However, if it is considered wise to have an elixir of gentian the nature of which approaches that of the widely advertised proprietary, a very elegant and rather pleasant tasting elixir can be prepared without the glycerin according to the following formula:

| | |
|------------------------------------|---------|
| Fluidextract of Gentian..... | 10.00 |
| Fluidextract of Taraxacum..... | 15.00 |
| Acetic Ether..... | 0.50 |
| Phosphoric Acid..... | 5.00 |
| Compound Tincture of Cardamom..... | 60.00 |
| Tincture of Sweet Orange Peel..... | 15.00 |
| Sugar..... | 400.00 |
| Sherry Wine to make..... | 1000.00 |

COMPOUND ELIXIR OF PEPSIN AND RENNIN N. F.

The following is a very satisfactory formula for this elixir:

| | |
|------------------------------------|---------|
| Pepsin..... | 22.50 |
| Rennin..... | 16.50 |
| Lactic Acid..... | 2.00 |
| Tincture of Sweet Orange Peel..... | 15.00 |
| Syrup..... | 150.00 |
| Alcohol..... | 200.00 |
| Oil of Myristica..... | 0.10 |
| Distilled Water to make..... | 1000.00 |

ELIXIR OF TERPIN HYDRATE N. F.

| | |
|------------------------------------|---------|
| Terpin Hydrate..... | 17.50 |
| Alcohol..... | 425.00 |
| Syrup..... | 400.00 |
| Glycerin..... | 100.00 |
| Tincture of Sweet Orange Peel..... | 20.00 |
| Distilled Water to make..... | 1000.00 |

NOTE: In connection with this preparation it is worth while recording that in one experiment diluted glucose was substituted for the syrup; although at first it made a clear preparation, after some days a dirty precipitate made its appearance. Right here I should like to say that solutions of glucose do not keep well; for that reason it will be good policy to be very cautious about substituting it for the official syrup.

GLYCERITE OF TANNIC ACID U. S. P.

The formula adopted by the B. P. Codex as a substitute for the official glycerite of tannic acid makes a very unsightly preparation. And it would seem that this preparation is not used in large enough quantities to justify the use of a substitute, as it is only used for local application and usually in small amounts. In this preparation glycerin serves a definite purpose; therefore, it can not well be replaced by a substitute without causing a depreciation of its activity; hence it would be better to leave this formula stand as it is.

GLYCERITE OF BISMUTH N. F.

Since the value of the bismuth salts lies in their insolubility, there seems to be no object in having bismuth preparations containing soluble salts of this chem-

ical; hence the glycerite of bismuth as well as the several official preparations into which it enters are unnecessary preparations and could well be dispensed with.

ALKALINE ANTISEPTIC SOLUTION N. F.

A permanent, very elegant, agreeable tasting Alkaline Antiseptic Solution can be prepared according to the official formula, with only one-third of the amount of glycerin called for in that formula. The solutions of Carmine and Cochineal N. F.¹ could both be dispensed with, as they serve no further purpose than to act as coloring agents. If a coloring agent is desired, the Compound Tincture of Persionis modified according to the following formula makes a very nice coloring agent for either acid or alkaline solutions:

| | | |
|----------------------------|-------------|---------|
| Powdered Cudbear..... | 100.00 | |
| Caramel..... | 100.00 | |
| Alcohol, one part | } q. s..... | 1000.00 |
| Distilled Water, two parts | | |

Moisten the cudbear with a part of the menstruum in which the caramel has previously been dissolved; allow to macerate for 48 hours, then extract by the usual methods of percolation. This makes a tincture that keeps well and gives a pretty red color to solutions.

SOLUTION OF FERRIC SALICYLATE N. F.

A very elegant looking solution of Ferric Salicylate, that keeps as well as one that contains glycerin, can be made according to the following formula:

| | |
|------------------------------------|---------|
| Citric Acid..... | 8.50 |
| Methyl Salicylate..... | 6.50 |
| Sodium Salicylate..... | 125.00 |
| Tincture of Ferric Citrochlor..... | 125.00 |
| Aromatic Elixir..... | 150.00 |
| Distilled Water to make..... | 1000.00 |

SOLUTION OF PANCREATIN N. F.

A very satisfactory solution of pancreatin can be prepared according to the official formula by substituting one decigram of saccharin for the glycerin in one thousand mils of the preparation.

AROMATIC SOLUTION OF PEPSIN N. F.

This solution of pepsin can be prepared and stands up well, according to the following formula:

| | |
|------------------------------|---------|
| Pepsin..... | 17.50 |
| Oil of Cinnamon..... | 0.25 |
| Oil of Cloves..... | 0.50 |
| Oil of Pimenta..... | 0.25 |
| Alcohol..... | 35.00 |
| Hydrochloric Acid..... | 10.00 |
| Glycerin..... | 100.00 |
| Talcum..... | 15.00 |
| Distilled Water to make..... | 1000.00 |

We can not help but feel that with an official elixir of pepsin and rennin compound, and an aromatic solution of pepsin, there is no real need for the glycerite

¹ Uniformity in color of preparations is important.—Editor.

of pepsin and the solution of pepsin into which it enters in conjunction with another lot of glycerin.

SYRUP OF CALCIUM LACTOPHOSPHATE U. S. P.

The following formula produces a preparation that is stable and looks well:

| | |
|-------------------------------------|---------|
| Precipitated Calcium Carbonate..... | 25.00 |
| Lactic Acid..... | 60.00 |
| Phosphoric Acid..... | 40.00 |
| Stronger Orange Flower Water..... | 50.00 |
| Sugar..... | 650.00 |
| Distilled Water to make..... | 1000.00 |

Glycerin is not necessary in Syrup of Hypophosphites and in Compound Syrup of Hypophosphites. The U. S. P. VIII formulas for these syrups yield just as nice and just as stable preparations as the formulas calling for glycerin. And the Compound Solution of Hypophosphites is nothing more than an unnecessary duplicate of the syrup and could well be dispensed with.

Aromatic Fluidextract of Cascara can be made according to the official formula without the glycerin. It stands up just as well as the preparation containing the glycerin, and is plenty sweet enough.

The compound tinctures of cardamom, gentian, and cinchona can all be prepared and stand up well without the use of glycerin in them. So far as taste is concerned, glycerin makes no material difference in any of them. In our experience the use of glycerin in compound tincture of cardamom as an agent to prevent the formation of gelatinous clots and sediment has not proven successful. Likewise it is uncalled for, since the preparation can be made without that annoyance occurring. As pointed out in a paper written by Mr. J. K. Thum some years ago, these undesirable features can be prevented by substituting spirit of cinnamon for the cinnamon bark.

The following is a very satisfactory formula for the making of the compound tincture of cardamom:

| | |
|------------------------------|--------|
| Cardamom..... | 25.00 |
| Caraway..... | 12.00 |
| Cochineal..... | 5.00 |
| Spirit of Cinnamon..... | 3.00 |
| Diluted Alcohol to make..... | 1000.0 |

It has been our experience that the sediment formed in the compound tinctures of gentian and cinchona is the result of faulty technic followed in their manufacture. In preparing a percolator for the extraction of the drugs from which these tinctures are made, it is well to pack the cotton tightly into the neck of the percolator, then the previously mixed and macerated drugs should be placed into the percolator without packing, then the menstruum added and percolation allowed to proceed according to U. S. P. directions (the U. S. P. menstruum minus glycerin being used). These tinctures prepared according to this method throw down very little inert matter on standing.

CHEMICAL THEORY, A PRACTICAL METHOD FOR TEACHING IT.*

BY FREEMAN P. STROUP.

One of the many problems that the teacher of chemistry has to solve is that of presenting the subject of chemical theory to his pupils in such a clear manner that all of them may get a fair grasp of it. The student who has an analytical mind, and whose preliminary training has been such as would develop it, has comparatively little trouble in understanding the explanations given in the ordinary text-books on chemistry, particularly when these are analyzed for him by an instructor; but to the student not blessed with an analytical mind, or whose early training has been faulty—the student who can not solve correctly the simplest mathematical problems—the correct writing of a chemical formula offers serious difficulties, while the correct balancing of chemical equations seems to him a veritable Chinese wall standing between him and the goal he is striving to reach.

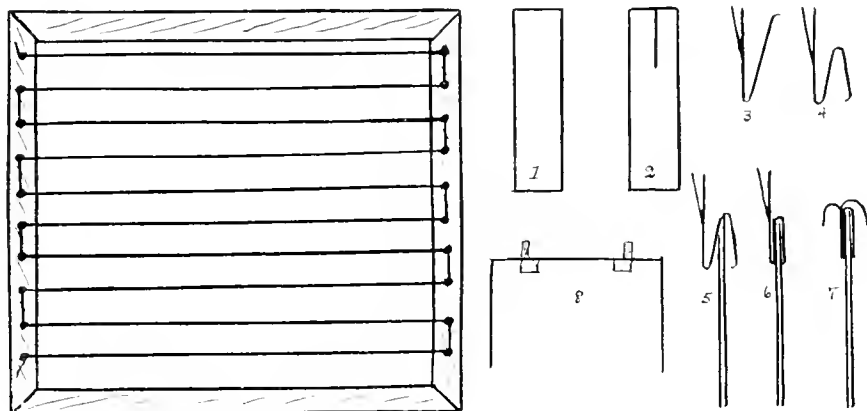
All teachers who are at all interested in their work rejoice to see their bright pupils do good work, but the conscientious instructor gets more real enjoyment out of noting the gleams of dawning intelligence that occasionally light up the countenance of one of the dullards of his class as he begins to comprehend something which is being explained, possibly something which the majority of his classmates had grasped long before. In his efforts to reach these unfortunates the writer of this paper has tried various schemes, some of his own invention, some devised by others, and some his own adaptation of the ideas of others, and out of his experiences, extending over nearly a score of years, there has been evolved a system which he has used for several years and has found very helpful. Not only has its use enabled him to give his poorest students a fair understanding of chemical theory, but, he believes, even his brightest students have been given a stronger hold on the subject than they could have gotten otherwise with the same amount of study. To some of you this "card system" (so called for want of a better name) may seem too much on the order of the "kindergarten" to be given a place in a college professor's methods, but so long as it produces results that are worth while, he feels justified in using it, and in passing it along to his fellows in the fraternity.

EQUIPMENT.

The equipment is simple and need not be expensive, as it may be made from cheap and easily obtainable materials. If a wooden blackboard is available, one into which small nails may be driven, it will serve very well. In its absence one can be made from Compoboard or some similar light material, and enclosed in a frame made of floor lumber or similarly grooved board. It should be made so that both sides are available for use, one for Organic formulas and the other for Inorganic formulas and equations, and, of course, should be provided with hooks or supports so disposed that either side may be used at the pleasure of the operator. Inasmuch as the system is generally used to supplement blackboard instruction the board should be painted a dead black. There should be at least 30 by 60 inches of clear space inside of the frame. Horizontally across the faces of the board should be stretched wires, the chief function of which is that of supporting the

* Presented before Section on Education and Legislation, A. Ph. A., Chicago meeting,

cards used in demonstrations. Number 22 tinned steel or iron wire (about the size of ordinary broom wire) is quite suitable, as it can be easily stretched and, unlike copper wire or twine, remains taut. On the Inorganic side of the board the wires should be just three inches (the width of the cards) apart, and, because the space between two adjacent wires is intended to indicate a valence of one, a heavy white line should be drawn on the board under each wire. On the Organic side the wires are for support only, hence no lines should appear under them, and it is better to have them somewhat more than just three inches apart. At least eight wires are needed on each side, but more may be used to advantage on the Inorganic side.



PART I.

PART II.

EXHIBIT A.

Part I.—Board (30 by 30 inches) suitable for Formulas; should be 30 by 60 inches for equations.

Part II —Details for two-way card-hooks: 1, Blank, $1\frac{1}{4}$ by $3\frac{1}{8}$ inches; 2, blank with slit; 3 and 4, edge, showing bending stages; 5, 6 and 7, attaching to cards; 8, card with hooks attached but only one-half of hooks turned down

There will be needed a lot of dark-colored cards, each to contain the symbol of an element or the formula of a group. The writer made his set from cards intended originally for photograph mounts. A considerable saving may be effected by using both sides of each card, in which case, however, care should be taken to put on opposite sides such symbols or groups as are not apt to appear together in a chemical formula. If both sides are "positive" or both "negative" there will be no trouble. Six inches is a good length for the Inorganic cards and eight inches for the Organic. If only one side of cards is to be used, suitable supporting hooks may be obtained from a good stationer. If both sides are to be used, two sets of hooks may be used, or two-way hooks may be made easily from thin tin-plate (such as is used in making containers for certain well-known types of confections). A little study of the drawings (Exhibit A) should enable anyone possessing a pair of old shears, a small pair of pliers, a hammer, a little time and patience, to turn them out readily and in quantity.

The lettering on the cards may be done with crayon, but, preferably, with "white ink" put on with a camel's hair brush. If the "ink" is not obtainable from a stationer, one may be made from mucilage of acacia and zinc oxide, using water

for thinning. Zinc oxide seems to be the best pigment, as it is quite opaque, spreads well and remains white, even in an atmosphere containing hydrogen sulphide. A trace of phenol or oil of cloves will keep the "ink" from spoiling.

The Organic cards should be uniformly 3 inches wide, while the Inorganic cards should be 3, 6, or 9 inches wide, according as the symbol or group to be placed thereon has a valence of one, two or three. Cards for atoms or groups of higher valencies are not likely to be needed, as, once the students understand the use of the one-, two- and three-valency cards and the formulas developed with them, they will be able to work out mathematically formulas involving higher valencies. For demonstrating formulas only, a good working set of cards contains three each

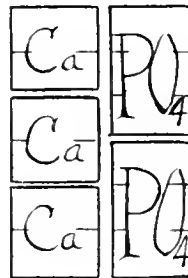
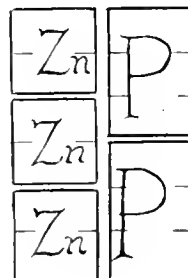
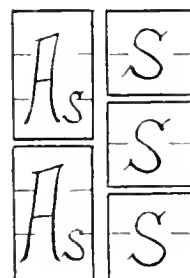
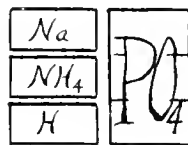
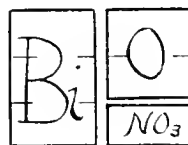
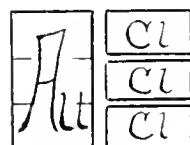
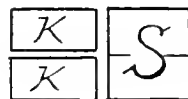
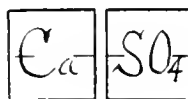
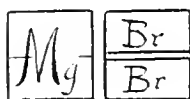
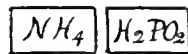


EXHIBIT B.

of the commonly used organic groups and of the commonly used univalent and bivalent inorganic atoms and groups, and two each of the ordinary trivalent atoms and groups. For demonstrating equations readily, about four times as many cards of each kind will be needed. Ordinarily, however, it is not necessary to show more than a few type equations (see Exhibit C), in which case cards for only a few elements and groups are required in quantity.

For demonstrating organic "graphic" formulas it is convenient to have a card for CH₄, another for NH₃, each three spaces wide, and a third one for C₆H₆, seven spaces wide. The lettering on these should be, preferably, in a color distinct from that on the smaller cards. "White ink" tinted with a little lead chromate will do very well.

DEMONSTRATIONS.

Chemical Formulas.—A few typical formulas will be sufficient to demonstrate the use of this card system. In beginning the study of chemical theory with a new class of students the average teacher takes up binary compounds first, and later the more difficult ternary compounds, the majority of which fall under the heads, Acids, Bases and Salts. By means of this system the student can be brought easily to see that in the former an atom or atoms of one element are linked to an atom or atoms of another element, the number of each depending upon their several valencies, while in the latter there are groups of atoms, acting as units,

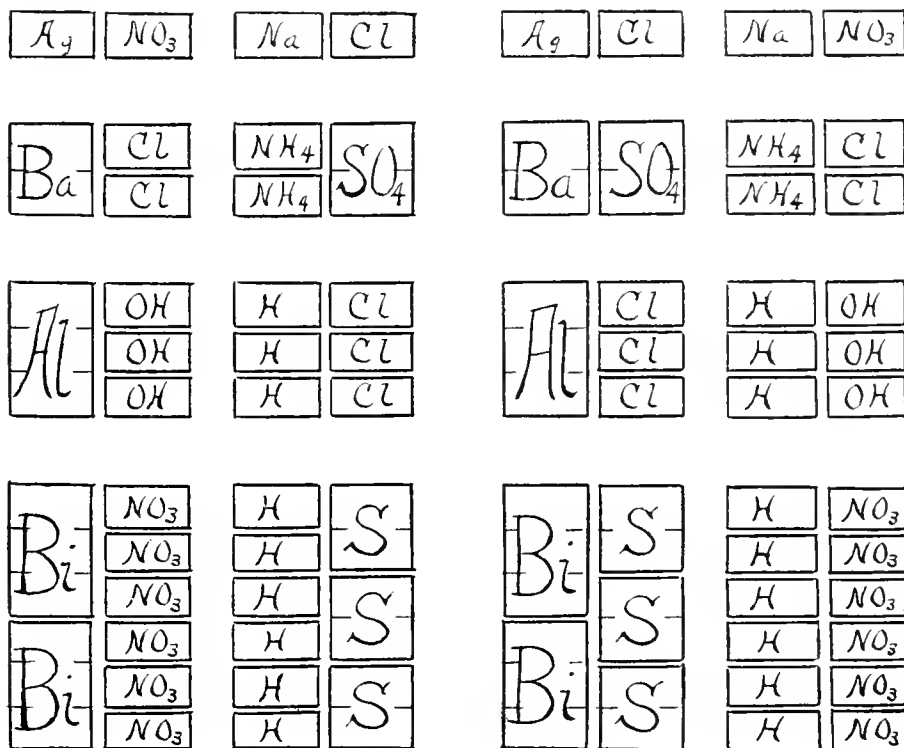


EXHIBIT C.

with definite valencies, and that the writing of formulas of ternary compounds should be no more difficult than the writing of formulas of binary compounds. He is taught that a formula is not correctly written unless the total valencies of the positive part (the left side) equals the total valencies of the negative part (the right side). In a card system formula the perpendicular width of the formula should be uniform throughout its length.

Referring to Exhibit B it will be noted that some of the formulas show combinations of two kinds of atoms, some combinations of an atom with a group, some combinations of groups with groups. Students are not apt to go far wrong with formulas of the type of KCl , $AgNO_3$, $NH_4H_2PO_2$ and $CaSO_4$, as only two cards are needed in each case. Now let the teacher put together one Mg and one Br , or one K and

one S, and the dullest pupil will see at once that something is out of balance, and will be apt to see that for one Mg two Br, and for one S two K will be required to give a balanced formula. It will then be quite easy for him to understand AuCl_3 , BiONO_3 , and $\text{NaNH}_4\text{HPO}_4$. The last three formulas in the set give the instructor a nice opportunity to develop a formula in stages. Taking As_2S_3 for illustration, one As and one S do not balance, one As and two S overbalance as to S, two As and two S overbalance as to As, while two As and three S just balance. By the time a half dozen such formulas, using different combinations each time, are worked out before him, it is a dense student, indeed, who does not begin to see things in their true perspective, and begin to wonder why he did not grasp them before.

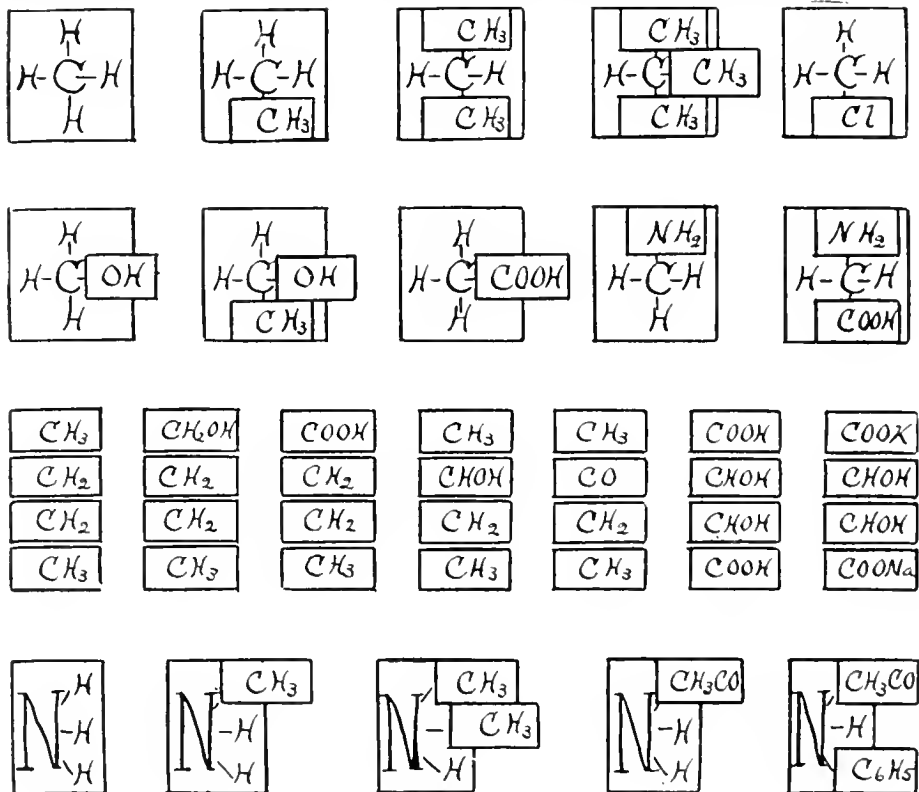


EXHIBIT D.

Of course, after a formula has been built up with the cards, it should be translated into the form in which it would appear in chemical literature, and the proper chemical name should also be taught at this time. It seems best not to attempt any but inorganic formulas at first, but, later, after organic compounds have been taken up for systematic study, formulas of Acetates, Tartrates, Citrates, Benzoates, Salicylates, etc., both of inorganic and organic bases may be shown.

Organic Formulas.—The two main classes of organic compounds are the saturated open-chain and the closed-chain (or cyclic) hydrocarbons and their derivatives, mostly substitution compounds. The former have as their nucleus Methane (CH_4), the latter Benzene (C_6H_6). Certain nitrogenous compounds can

best be considered as derivatives of Ammonia or Amine (NH_3). Exhibit D illustrates just a few of the possibilities of the card system as a means of building up complex formulas from simple ones, and for showing the structural relationships that exist between seemingly unrelated substances.

The card system is particularly well adapted to the explaining of isomerism among organic compounds, its effectiveness being best shown, perhaps, with the aromatic compounds, those based on C_6H_6 (Exhibit E). It is easier to shift a card from one position to another than to make the necessary changes in a written formula, and, besides, the writer has noticed that many students "catch on" quicker when they see a card shifted from one place to another than when they see

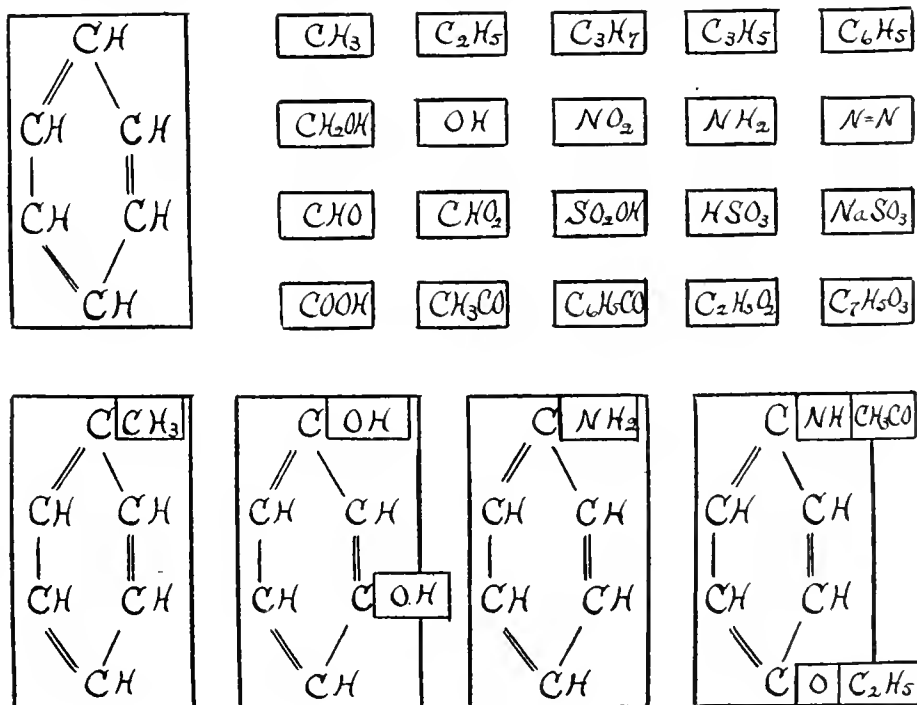


EXHIBIT E.

one lot of chalk rubbed off the board, another put on in the restoring of a letter or group, and still another change made at some other place in the formula. In teaching class reactions it is instructive to take up the syntheses of several more or less complex but well-known substances, beginning with the underlying hydrocarbon. One of the best for illustrative purposes is that of Phenacetin, and this may be worked out beautifully with the card system, and generally makes a lasting impression on the minds of most students. Exhibit F suggests how it works out, if the cards are used in the order indicated by the numbers.

Chemical Equations.—Exhibit C gives only a few typical equations of the many that may be developed by the card system. It works perfectly for equations involving simple interchange of atoms or groups, without change of valence, but it is not well adapted to the showing of oxidation and reduction equations, where

there is change of valence; but, inasmuch as most of the equations which the beginner meets in his studies are of the interchange type, it is worth while to use it. Of course, card system equations should be promptly translated into the ordinary text-book form, for that, after all, is the end sought, the system being only a means readily to attain that end. After the student has once learned to balance equations of this type he can be more or less easily trained in the balancing of oxidation and reduction equations. It should be observed that, by considering each card as standing for an ion, the ionization theory may be effectively demonstrated. Cards making up formulas of highly ionized compounds may be left some distance apart, while those composing the formulas of un-ionized compounds may be butted closely together.

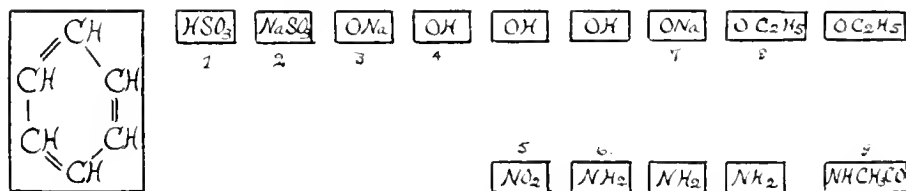


EXHIBIT F.

Some of the writer's pupils have made for home use sets of miniature cards from thick paper or thin cardboard, considerably to their advantage. The mere making of the cards, even though never used, is instructive, as the maker becomes thus impressed with the symbols of elements, the formulas of important groups, and, what is of vast importance to him, the valencies of these.

Enough has been said to give you a fair conception of the possibilities in this system. Actual use of it will bring to light possibilities not suggested in this paper. With the hope that others may have even a greater degree of success with it than the writer has had, he gladly passes it on to his fellow-workers in the teaching fraternity. Should any of them think it worth trying he would be pleased to hear what success they have had with it, and he would be glad to receive suggestions as to how it may be improved.

ENTRANCE REQUIREMENTS TO PHARMACY.*

BY WILLIS G. GREGORY.

Recognizing both the serious shortage in drug clerks and the desirability of attracting to pharmacy the most desirable recruits, the New York State Board of Pharmacy has tried to meet both conditions.

Of course, the temptation is ever present in any emergency to surrender some of the safeguards that have been laboriously constructed through years of endeavor. But unless absolutely necessary, no backward step should be taken.

The problem then was how can present needs be satisfied without the sacrifice of much future good. The Colleges of Pharmacy in our state all reported that high school graduates sometimes declined to study pharmacy because of the

* Read before Section on Education and Legislation, A. Ph. A., Chicago meeting, 1918.

long interval between their graduation and the time they could take the Board Examination, caused by the four-year experience requirement.

To save these high school graduates to pharmacy, as well as to increase the number of young people entering its ranks, it was proposed to credit to such students two years of the required practical experience for their high school course.

Here are some of the considerations that led to this proposal:

A. How many of us honestly think a high school graduate should spend two or three years running errands, washing bottles and tending soda fountain? The conditions of apprenticeship are not the same in any calling as they were in the youth time of many of us.

B. Some of us have had experience with high school graduates beginning behind the counter; not always satisfactory, of course, but in many cases the experience was sufficient to prove that a short period of training gave us comparatively safe and efficient helpers.

Credit for education is not at all a rare thing.

A. In Europe, where three years' compulsory military service has been the rule the college graduates have been credited with two years and obliged to serve only one.

B. In America, where pharmacists are obliged to enlist as privates, medical graduates are at once given a lieutenant's commission.

C. In our new army, where pharmacists have enlisted as privates, many of them have been transferred to the medical corps, where they not only are of more service to the nation, but where also they are relieved of much military drudgery.

D. In this state, three years of study in a practicing lawyer's office, is required for admission to the bar examination, but in the case of a Law College graduate, this period is reduced to one year.

Instances of this character could doubtless be multiplied. The world over, education is recognized as increasing a man's power and value and as enabling him to accomplish any intellectual training in less time than can be done by one less thoroughly trained. Why should not this principle be recognized and applied in pharmacy?

This proposition, which the writer still thinks possesses considerable merit, did not receive unanimous approval, and so it was not pressed. However, there sprang from it another plan, which did not excite opposition and which may be helpful in the present crisis.

Graduates of registered Colleges of Pharmacy with two years of practical experience, including the time spent at college, and 19 years of age, are permitted to take the pharmacists' examination, except practical pharmacy, at once, instead of waiting for 21 years of age and 4 years of practical experience. For such examination, if successfully passed, a new license will be issued, to be known as a "Junior Pharmacist" license. This license will confer upon its possessor similar rights to those now given a licensed druggist. In addition, upon the completion of four years' experience, 21 years of age, and passing the practical pharmacy examination, the "Junior" license can be exchanged without other requirements for a pharmacist license.

The object of this plan is to permit students who go from the high school into the College of Pharmacy, without having secured much previous drug store experience, to take the State Board Examination soon after their college training, while the theoretical and technical part of their education is still fresh in mind.

It is believed that this new arrangement will increase the number studying pharmacy and that these additions will be of good quality. That this innovation in entrance requirements may not prove too shocking to ultra-conserva-

tives, the writer has saved for this last sentence, the statement that this change has been enacted already into the law of the State of New York and the first examination under it has been held.

SO-CALLED COMMERCIAL PHARMACY SHOULD NOT BE TAUGHT AT COLLEGES OF PHARMACY.*

BY FREDERICK J. WULLING.

From a list of suggested titles for papers I will speak indirectly and collectively on the following:

1. Teaching of Commercial Pharmacy—Suggested Methods and Materials.
2. Psychology as Applied to Business Should Be Taught in Our Colleges of Pharmacy.
3. The Qualifications of a Teacher of Commercial Pharmacy.
4. What Percent of Our Curriculum Should Be Devoted to Commercial Subjects?

From these titles it would appear that it is taken for granted that commercial pharmacy, whatever that is, should be taught by the colleges of pharmacy. I dissent from this view unless by the term "Commercial Pharmacy" is meant the commerce incidental to the practice of pure pharmacy. In that case the phrase would be entirely misleading. It is clear that the term has quite another meaning and that by it is meant the commerce in all the multifarious commodities and products other than drugs and medicines carried by the so-called modern drug store. Much of that kind of commerce is not related to pharmacy in any wise, except that it is carried on vicariously by pharmacists. If the same kind of commerce were carried on, as it is in a large measure, in other places of business it would certainly not be called commercial pharmacy. In fact there is no commercial pharmacy at all. The term is an incompatibility. Pharmacy is a department of medicine and not trade. We have the contradiction of persons called pharmacists, specially privileged and empowered by the state to render an important professional service to the people, engaging in trade and calling it commercial pharmacy. There can not be any objection to the trade itself carried on by the pharmacist; the objection is to the fact that it is allowed to overbalance in many cases the activities of pharmacists who are especially licensed to do something else. It is unquestionable that the legislatures when they enacted the pharmacy laws and established the boards of pharmacy intended to have them apply solely to the practice of pharmacy and not to trade. In enacting pharmacy laws the legislatures intended thereby to provide trained and educated persons to render competent pharmaceutical service to the people. Such training is not necessary for carrying on trade nor for the protection of the public in such trading. *In return for the highly specialized service intended and expected by the legislatures they gave to pharmacists all the benefits and advantages of a privileged class by restricting the practice of pharmacy to them and excluding all other persons from engaging in the practice.* It is true that the law does not specifically prohibit licensed pharmacists from engaging in trade while exercising and enjoying the special privileges

* Read before Section on Education and Legislation, A. Ph. A., Chicago meeting, 1918.

bestowed by the state, but as I see it the voluminous trade activities, especially of the larger so-called commercial drug stores and departments, exhibit on part of the proprietors a disregard of ethics and a lack of the sense of obligation and of good faith owing to the state for the privileges granted. Is this increasing commercial practice, especially on the larger scale, not an exploitation of an honored and highly responsible calling? It seems so to me and I believe the coming generation and the many high-minded of the present generation will not tolerate an unabated continuance of it. There are many things pointing that way. Some legislators have already expressed themselves as favoring a limitation by law of the number of pharmacies and of restricting the activities of registered pharmacists to the practice of their calling. Personally, I am in doubt of the wisdom of such measures in this country, but we may come to them.

There is also indisputable evidence that many persons, even entire families, are seeking and enjoying in increasing numbers the pharmaceutical service of those who are devoting themselves exclusively to the rendering of that kind of service. Professional pharmacies are increasing in number and, although the increase is slow, it is gaining momentum. Concurrently, some of the larger department drug stores, probably for economic reasons, are relinquishing entirely their dispensing and pharmaceutical departments. I am told that there are now five such drugless drug stores here in this city of Chicago. A new name will have to be coined to designate these establishments.

Can we consistently blame the Government for failing to recognize pharmacy as it is generally practiced to-day as a profession and as worthy to be included in those higher and specialized agencies upon which it called to help prosecute this war? While I feel that the Government ought to recognize and avail itself of that membership of the calling capable of purely professional practice, there is some force in its implication that the excessive and dominant commercial practices establish a general standard not fit to be recognized as commensurate with those of other more highly standardized callings. As I have often maintained, commercialism is just as necessary and respectable as professionalism, but is it not wrong for the practitioners of any department of commerce to usurp the privileges and to lower and sophisticate the standards of a profession?

The claim sometimes made that the commercial activities of pharmacists are a necessary economic development is not well taken if viewed from the standpoint of the legislatures which created the laws regulative of pharmaceutical practice, except possibly in the cases of small towns who could not support a purely pharmaceutical establishment and whose inhabitants would otherwise be deprived of necessary pharmaceutical service.

I now ask: Is it consistent for the colleges of pharmacy, the most important and fruitful agencies for the maintenance and uplift of professional pharmaceutical standards and ideals; the chief evidences of the recognition, on part of the better qualified and of those possessing discernment and good judgment, of the professional nature of pharmaceutical practice; the very factors which by their teaching and example have more than any other endeavored to stem the tide of commercialism and which have had their origin in the perception of the necessity of a thorough scientific and ethical training of practitioners, now to lower their standards and repudiate the very basis and ideals upon which they were founded? I say a

thousand times No! Colleges are to set standards and to lead, not follow. They are to be true and faithful to the purposes for which they were established; to train men and women to become scientific, safe and thoroughly efficient pharmacists. There are other and better schools and colleges for commercial training.

It is proper for colleges of pharmacy to give limited instruction on subjects that would make students more intelligent in the conduct of the business connected with the practice of pure pharmacy. A few lectures by specialists on each of the subjects of pharmacy laws, contracts, agency, commercial paper, property, insurance, bailments, partnership, transportation and the like and an introduction to general psychology would greatly help the student in all business matters connected with his professional practice.

It is significant that not many colleges of pharmacy teach "commercial pharmacy."

A SQUARE PEG IN A ROUND HOLE.*

BY CHARLES W. HOLZHAUER.

This is a day of specialization. No matter what may be the nature of the career a man may choose for himself—professional, commercial, military, literary, artistic—he has his calling what it may, his first aim and desire is to train himself so efficiently that he fits his job, and his job fits him. When he has achieved this "perfect fit," then, indeed, is his future success assured.

If you expect to make a man a good foot-ball player, you coach him in every intricacy of the game, teach him all the styles of play, prepare him physically at the training table, harden his muscles by systematic exercise—in short, the good coach tries to develop a finished product, capable of meeting any situation which may arise in the course of the game.

Pharmacy is not foot-ball, true enough, but some of the methods of foot-ball may be copied with profit to pharmacy, and it seems to me we should try in just this way to perfect our students of pharmacy for the actualities of the profession ahead of them. Our pharmacy courses are not comprehensive enough when we consider the future demands upon the student. Many of our graduates are "square pegs" and the work they are called upon to do proves to be the "round hole," *and they don't fit.*

But why this misfit? At the outset it might be well, perhaps, to define our ideas of what we expect our colleges to do. My own idea is this: the first consideration in shaping the course of instruction should be to make of the student a good prescriptionist—a capable and safe man to handle drugs. Naturally this is paramount. The second consideration should be to make of the student the most valuable and useful man behind the counter. Of course my view-point is that of the drug store, but is not that the very best view-point from which to consider the product of our schools? I have no figures available, but I think it is safe to say that at least 80 percent of our graduates spend their careers within the confines of the drug store, and if this is true, certainly the proprietor of a drug store ought to be as good a judge as any as to whether the young graduate measures up to his task or not.

* Read before Section on Commercial Interests, A. Ph. A., Chicago meeting, 1918.

Of what will the work consist which our graduate is called upon to do? Will he be asked, the very first morning he arrives at the store, to assay a sample of *nux vomica*? It is not likely. Will he be requested to keep his eye in the microscope, differentiating between pure drug and adulterant? I don't think so. Will the store want a chemical analysis of a solution? Hardly that. Of what, then, will his work consist? If it is an average store—and that is the one I am considering—he will be called upon to compound a few prescriptions (and we remember that about one-third of this work consists in transferring tablets and liquid from one container to another), possibly prepare a few simple preparations, and the remainder of his time will be devoted to checking up stock, pricing it, putting it upon the shelves, selling goods, thinking up and making window and counter displays, selling stamps and licorice root to the children, and at the same time serving as general information bureau for the neighborhood. Bear in mind, please, that I am talking about the *average* store. There are a few, and a *very* few stores, where these conditions do not obtain, but for the vast majority they do, and I don't think I have misstated the facts. A few stores in the large cities maintain prescription departments where men do nothing but prescription work, and some few have laboratories where preparations are made, but they are the exception rather than the rule, and I may say in passing, that there are not enough of these exceptions to accommodate all our graduates. A store was opened on Broadway, New York City, a little over a year ago. Its first window display was a United States Pharmacopoeia artistically set upon a bit of velvet in one window, and a mortar and pestle in the other. The interior was immaculate. The usual display cases were missing, the clerks wore snowy white uniforms, and fine furniture and easy chairs awaited the customer as he entered. Nothing could have been more ethical. But the store has ceased to exist and the man who bought the place is wondering whether he did not pay too high a price for what was left.

These are the conditions we are facing today, have faced in the years just passed, and, as far as I can see, will face in the future. Whether we like them or not I am not arguing. No doubt they ought to be changed, but the fact remains that they are here, and we have to make the best of them. A man can not make a living in these times, let alone provide for his future needs, by confining his business solely to the sale of drugs and prescriptions and sick room supplies. It has been tried and found wanting. His knowledge as to whether quinine turns red or blue when a drop of nitric acid is added will not help a bit when the landlord says the rent is due. The knowledge that phenacetin is the monoacetyl derivative of para-amidophenetol isn't good and valid consideration for your payment at the bank of your loan. The druggist must sell other merchandise, goods the people want, if his store is to succeed and he is to become a power in the community.

To return to our young graduate and his work, we find, then, that his activities will be divided, let us say: 50 percent pharmaceutical and 50 percent commercial. I am sure it is quite safe to say that of every \$100.00 received in sales in the average store, at least \$50.00 of it comes from purely commercial transactions. I have carefully noted our sales at various times and I must admit that our side-lines play an important part in the total. If the pharmacist has ability as a business man, does that detract one iota from his other attainments?

Doesn't it add to them and doesn't he command all the more respect from his associates? I see no reason why a man can not be a good business man and a good pharmacist. In many of the lines we carry, and must carry, we are in direct competition with other merchants, and we must be just as alert and progressive as they are if we are to handle the lines profitably.

Conditions in the drug world have changed very materially in the past fifty years, and unless we wish to progress backwards, we have to change with the times. I have often heard my father say that sales on a Saturday night forty years ago consisted very largely of salts, senna and hair oil. These articles are not our main items to-day. He *made* compound cathartic pills by the barrel. We *buy* them to-day, and are money in pocket by so doing.

Since times have changed, we must concede the importance of the commercial side of our calling and give our students training in this branch to better fit them for their life-work. Let us take a glance at our Syllabus and see whether, in the matter of instruction, it approximates conditions as they exist. I find that out of a total of 1200 hours in the course, 75 hours, or 6 $\frac{1}{4}$ percent, are devoted to commercial pharmacy. The conditions as we find them in the store are 50-50, in the Syllabus 6.25-03.75. Is this as it should be? I think not. My plea is for increased instruction in commercial pharmacy. Our schools have added some instruction in this line, but it is not enough. The amount should be increased and the scope broadened. And isn't this right in line with other institutions of learning? Our universities have added such courses because they recognize the fact that their students need them, and the college is the place, best equipped, to give its men this training. Our large universities have even changed their entrance requirements to meet changed conditions. Why should not we change our pharmacy courses?

It is said that the pharmacy school is not the place for commercial training; that a man must acquire it through experience. It is true he will gain much by actual experience, but how many stores can give sufficient time or have facilities or *inclination* to give the young graduate the proper training? The school can do it and do it far more efficiently, but even though the student does gain business knowledge through the store, he will gain it at a far greater cost in time and money, and with greater difficulty than he would have gained it through the instruction of experienced teachers in college.

One very great result, it seems to me, would ensue if our students were given further training along commercial lines, namely this: it would actually increase the professional side of our business. What stores to day do the largest prescription business? The *Bulletin of Pharmacy* tells us that the store doing the greatest volume of prescription business is also the one that sells the most tooth brushes, photo supplies, shaving accessories, soda water, etc. And it is true. About a year ago we moved into a new store. Our space was very considerably increased, also our facilities for handling a larger volume of business. We sought to increase our prescription department and various methods were suggested. Among others, it was suggested that we send prescription blanks to all the city physicians. I consulted several friends as to the advisability of this suggestion and received answers at great variance. One man said it was simply throwing money away. Determined to find out by actual test, we sent blanks with our card at the bot-

tom to all practitioners in town and awaited results. We sent pads of one hundred blanks each to every doctor. It didn't take long to find out that it was a paying investment, for in a little over six months we had our money back, and at this date (somewhat over a year) we have received a very satisfactory dividend. In compiling our returns we eliminated all prescriptions which we thought we would have received in the natural course of events. Our aim was to arrive at strictly new business. I merely mention this incident to show how commercial training may be turned to good advantage to develop the drug and prescription departments. Wouldn't an applicant for employment in the store be worth considerably more if he could write a series of letters and conduct a campaign of advertising to the doctor featuring drug and prescription service? If he could say: "This is the way we should catalogue and arrange our stock," and: "This is the easiest and best way to take our inventory," and if he could dispose of that gross of liniment that has been in the cellar over a year through an attractive window display. He would be worth more to his employer and command a good and ever-increasing salary, and in his own store earn a far greater profit.

But, it is also said, there are men who expect to be truly pharmaceutical chemists—men whose work will be in the laboratories of manufacturing houses—men who expect to be teachers of pharmacy—what about them? Even though their number may be small, we should give them the instruction they should have. The answer is easy. Our schools are amply manned in both men and equipment—barring war conditions—and the courses are open to men who expect to be really scientists. I note that some of our schools favor four years of high school work and then four years of pharmaceutical training. Of course such education would justify a B.S. degree, and anyone who wants it can obtain this degree in this way now, and I know of one school, at least, that will give a very full and complete pharmaceutical education in the four-year course. My thoughts on this subject refer to the Ph.G. course—the one that the man behind the counter usually takes. For the future pharmaceutical chemist this instruction is not nearly sufficient, and he should matriculate in one of the advanced courses. We need not worry about him.

In conclusion, it is fitting to ask how such a change in courses of instruction can be made. The course is overcrowded now and will bear no further extension. I answer frankly—I don't know. Whether it should be done by deleting some courses we now have, or by retaining our present course and adding more commercial training to it, I do not attempt to answer. I believe we are giving some instruction which has very little value to the student in his future work, but I do not know whether it should be discontinued. Nor do I wish to give the impression that scientific training should be sacrificed for the sake of commercial. It is of greatest value, and the world would be in a sorry plight if we had no further scientific education and advancement. Our present pharmacy course gives a man a splendid education and much useful knowledge whether he remains in the drug business or not, but I do insist that along with it he should be given a thorough business training of such quantity and quality as is commensurate with its importance in the drug store of to-day. If conditions change later, change the course, but graduate the students of to-day well grounded in both branches of our calling.

The man whose business is at a standstill, who never makes more than enough to get along, be his profession ever so scientific, loses respect for his calling as well as the respect of his neighbors. We all know how "Nothing succeeds like success." Let this same man turn his business into a paying proposition, become a "live wire" in the community, and watch his self-respect go up by leaps and bounds. He is still a "man of science," but he is also a man of standing. He unconsciously boosts his profession wherever he is seen or mentioned. Since we can not change the nature of the pharmacist's job to suit his training, why not change the nature of the training to fit the job?

Students well informed in both branches of our calling will have a far greater chance for success, will be far more valuable in the store, will be looked up to by their fellowmen, and will be a credit to pharmacy. Give us more commercial training, and instead of a square peg, give us a round one to fit a round hole.

ABSTRACT OF DISCUSSIONS.

Jacob Diner, in opening the discussion on Mr. Holzhauer's paper, cited some of the methods employed by the "ethical drug store" of his paper. In literature sent out from this store 95 percent of the druggists were charged with being substitutors. In another letter, directed to physicians, the charge was made that the physicians addressed evidently did not care what became of their prescriptions. Continuing, the speaker said:

"I do not wish to deprecate the need of commercial training in pharmacy, which is, perhaps, more largely commercial than any other profession or semi-professional calling, but I do believe that the primary function of the college of pharmacy—I emphasize the words 'primary function'—is to prepare a man to do that work which as a pharmacist he is called upon to do. It is desirable that that man should have some knowledge of commerce, some knowledge of merchandising and stock taking and invoicing, sending out letters, advertising, and all that sort of thing. A poor letter may destroy good business, but shall we make that the principal end of the training of a pharmacist? I do believe that a successful business man is practically born, and not made. The man who is not born a business man can acquire a certain amount of training. The department stores, which are purely and fundamentally commercial, have established in their own institutions training classes for their salesmen and salesladies. I believe that a solution of the problem would be a postgraduate course in commercial pharmacy rather than an undergraduate course in commercial pharmacy.

There is, no doubt, a great deal of truth in what Mr. Holzhauer has said, that at least fifty percent of our business is commercial, but I am sure that he will admit that it would be a mistake to take fifty percent of the curriculum for commercial pharmacy. I do not believe that boys and girls, when they come to the pharmacy school, are in a position to grasp the principles of commercial pharmacy as readily as the principles of theoretical pharmacy. I believe that the commercial end can be learned more readily by experience after passing examinations and when they can devote their entire attention to the subject of commerce. Such training can be obtained in a store. Let us have well trained commercial pharmacists, but not at the expense of the professional education and training, of which there is so little in the ordinary drug store.

CHARLES W. HOLZHAUER. I do not undervalue professional pharmacy; I say that the first consideration should be to make a good prescriptionist, a capable man to handle drugs. I did say, and I do say, that if we give our men more commercial training they will be more valuable and useful in a drug store and they will make a greater success of their business and of their lives than under the present conditions.

HARRY B. MASON. The educators have said, and probably always will say that we ought not to teach commercial pharmacy; that if we teach commercial pharmacy or recognize its existence at all, we magnify the evil. Now, is not that a fundamental fallacy? Of course, we have the high ideals that our men are to be trained scientific pharmacists. The schools have always laid emphasis on scientific work, but it does not make so much difference what you teach, conditions in actual life will differ from the economic conditions. You can not stem the course

of a river by saying so. Let us have done with that if we hold up high ideals we will change the source and course of the stream. We are facing a condition and not a theory; we have the retail drug business as it exists to-day. Mr. Holzhauer says it is fifty percent commercial and fifty percent scientific. I would be inclined to say it is seventy and thirty. We have heard a good deal in the last twenty years about vocational training. We have it in all other vocations, but they are not training the young men to-day, and never have trained them, to go out and practice the drug business, with the condition of the drug business as it is actually conducted. For the last ten or fifteen years I have paid a good deal of attention to the subject of business accounting, and I have conducted a large correspondence with druggists all over the country, and I know that the average druggist and his clerk are untrained in business. Mr. Diner says that the business men are born and not made. If a man is a born business man he ought to know after nineteen years how to assimilate what he is born with. You might as well say that a lawyer is born, so do not trouble him with a law course. You have to train a man for any occupation, whatever it may be. I agree with Mr. Holzhauer that the statement is fallacious, that if you send out a man with a commercial training you will lessen his interest in professional matters. I know it is a fact that most of the commercial stores, large stores, are the ones that develop their prescription business. Not all of them, but most of the larger stores which are commercially successful, develop their prescription business and have four or five or six or eight prescriptionists who do nothing else but dispense prescriptions.

Now, let us do away with the idea that if we train a man commercially we will lessen his interest in the professional aspects of his business. It seems to me that it all harks back to the fact that we are facing a condition in the retail drug business through evolution, and we must recognize it and prepare the young men for it. I echo Mr. Holzhauer's sentiments that an educational institution, if it is worth its salt, must keep pace with changing conditions and should not educate a man to practice his calling as it existed forty years ago, but to practice his calling as it exists to-day.

LEONARD A. SELTZER: Mr. Mason is the high-priest of business in pharmacy; as the editor of one of the leading journals he has done a very great deal in educating pharmacists throughout this country in business methods. But it seems to me that the things he has told us just now, while true in themselves, are misleading, because while business in pharmacy is absolutely necessary, the question we are discussing is where shall that education be obtained. Now, is business training any less necessary in a grocery store or dry goods store than a drug store? I venture to say not. And yet we have no schools for dry goods or grocery stores or meat markets. There is only one place where we can learn the business and that place is not in a school. I have had, under my training, men who have gone to business college, and it has been necessary for me to show them the principles of business. I did not get my business training in a school and in less than six months I took charge of a set of books.

There is only one place where we must gain our technical knowledge, and the only one chance we have to get it is in our pharmaceutical schools. Let us devote our time in the pharmaceutical schools to learn these things and we will gain our commercial training in actual business, if we ever get it at all.

JACOB DINER: Mr. Mason misunderstood my statement or misinterpreted it. I said a good business man is born, but I also said that a certain amount of business training could be acquired. I agree with Mr. Holzhauer that the best postgraduate course is behind the counter, but if the young man needs some theoretical or practical knowledge on commercial subjects, by all means give it to him. Provide for it in the postgraduate course. But let us not take away the fundamentals.

CHARLES W. HOLZHAUER: The theory that a man shall get his experience in business life, of course, is fine. The only trouble is, it does not work. How many stores have the facilities, or how many men running drug stores are competent to give their clerks that training?

BUSINESS TRAINING IN COLLEGES OF PHARMACY.*

BY E. FULLERTON COOK.

The teaching of business principles to students in pharmacy hardly needs a defendant at this time, but the scope of training, the details of instruction, and the methods for teaching, deserve the fullest discussion.

For many years, educators in pharmacy, and in fact, the majority of those conducting retail drug stores, were afraid to breathe the word "commercial." The ethical standard believed essential for professional ranking for pharmacists, seemed to require the elimination of the word "business." It is true that a few retail druggists, who possessed either unusual business acumen or were fortunate in securing training in the essentials of business, have conducted model stores from every standpoint, receiving the admiration and respect of all, even the most ethical of physicians, and with it an adequate financial return, yet many splendid druggists, with the highest ethical ideals, but using poor business methods, have gradually succumbed to inevitable business failure.

It was due to the years of observation of these conditions which finally led Professor Remington to advocate business training as an essential and compulsory part of a pharmacist's training, and he often said that if the majority of those who failed, had been taught common business principles, he believed they could have retained their ethical standards and also conducted a profitable business.

To admit the desirability of commercial teaching as a part of a professional education, opens the doors, it is true, to many extremes, and it is this phase of the subject which needs careful consideration and wise action.

So-called "pharmacy" to-day, in some of its developments, is so completely commercialized that the word "pharmacy" is no longer deserved.

In this type of drug store, the part of the day's activities which suggests professional pharmacy assumes the position of a small side-line and the man in charge of the "prescription department" has little or nothing to do with the business management. This is reserved for the business head, who more than likely is not a trained pharmacist and who has usually obtained his training in purely commercial circles.

Apparently having this class of pharmacies in mind, there have been a few earnest advocates of a commercial course for pharmacists which would replace two-thirds or more of the present college curriculum by purely business training, making a special feature of advertising and selling methods. This group represents one extreme, and on the other side stand those who can find no place for even the most elementary of business principles, in the course of a pharmacy school.

It is the midway course that seems advantageously to find a specific place in many of our colleges and which has proven itself of great value to graduates. Repeated testimony to that effect has been heard and the interest taken by the students and their progress in the work, further evidence its desirability.

It is not necessary here to outline the details of such a course. The "Syllabus" does so admirably and a number of papers are on record covering the individual ideas of those who are teaching the subject, but once more a brief statement of the course, which it would seem wise to follow: *i. e.*, instruction in the

* Read before Section of Commercial Interests, A. Ph. A., Chicago meeting, 1918.

ethical principles involved in business, then in the essentials of business success, followed by an outline of business terms, customs, and methods and, afterward, enough practical use of the machinery of business to give the necessary familiarity and confidence in banking procedure, common law, legal documents, insurance, general financing, accurate, but simple accounting, etc.

Such a training is proper for any professional man and will become an important factor in the success of his professional career. The giving of courses of a more essential commercial character, such as advertising and salesmanship, are open to differences of opinion, but the foregoing should properly find a place in a school of pharmacy course.

HISTORICAL OR EARLY PHARMACY IN INDIANAPOLIS.*

BY FRANK H. CARTER.

Pharmacy and the drug business of Indianapolis have changed just as in all other cities, towns and communities, and the people have changed with them.

Craighead & Browning, afterward Browning & Sloan, and still later Browning & Son, conducted and owned "The Apothecary Hall" on Washington Street. They were, no doubt, known to more people in Marion County and, to an extent, throughout Indiana, in their day than any other firm I can mention. George W. Sloan, after leaving the firm of Browning & Sloan, was prominent as a local druggist, as adviser and helper of young men. He was active in all movements for the betterment of schools and civic conditions and nationally favorably known in pharmaceutical affairs.

John C. Green, at the corner of Delaware and Washington Streets, was succeeded by W. A. & I. N. Pattison. A. Metzner conducted a store in the small, old frame building at the corner of Virginia Avenue and Washington Street, and was succeeded by Stilz & Hoffman, now in the new Indiana Trust Building. C. C. Dennis, on Pennsylvania Street, near Market, succeeded Swing & Dennis, and James R. Perry followed Perry Brothers.

J. W. Bryan was located near the old Union Station and F. A. Bryan on Massachusetts Avenue and Vermont, in the quaint one and a half story frame building. J. W. Dryer, a brother-in-law of the Bryans, had a store at Noble and Washington Streets.

H. H. Bates had a store in the old Bates House, on Illinois Street, on the same ground occupied by the present building. He was succeeded by Gray & Beyschlag, who conducted for many years one of the best known stores of the town. Cobb & Hay were located at the N. E. Corner of Illinois and Washington Streets, in the store which is still standing and its looks indicate that it was one of the first buildings erected on this thoroughfare. They did a prosperous business, not only in drugs, but also in carbonated water of the kind sold in these earlier years.

Binford Brothers conducted a store on the Washington Street side of the Bates House in the '60's. On the night of the Andrew Johnson misunderstanding this store was a refuge for many of the crowd after the shooting began. The

* Read before Section on Historical Interests, A. Ph. A., Indianapolis meeting, 1917.

writer was recently reading the bronze memorial on the corner of this building and was reminded thereby that he could go a long way back into Indianapolis history and pharmacy.

Of later date, there is Herman Frauer, J. B. Dill, Doc. Snyder, Sigman Muhl, Adrian Bowens, W. W. and J. M. Scott, Robert P. Blodau, George F. Traub, Frank H. Carter, Charles Woods, Louis Schulmeyer, Charles H. Schad, M. C. Staley and Henry Kielhorn. Dr. J. N. Hurty, as an ethical druggist, with an ethical drug store, was located on the site now occupied by the Federal Building. He was succeeded by Hurty-Francis and this firm by J. R. Francis Company.

Many of the stores mentioned have disappeared and in many instances the sites are not known to our present generation, a few still remain in remodelled and modernized buildings. Many of the owners have passed away, others are still among the living and doing their bit as good citizens in their every-day work and as members of national, state and local associations.

The writer has not mentioned all who are deserving of mention, but in an experience of nearly half a century has endeavored to touch slightly upon the events and people as he has known them.

SMALL PERCENTAGE OF SOLDIERS DIE OF WOUNDS OR DISEASE IN HOSPITALS.

The War Department authorizes the following statement by the Chief of Staff:

In connection with the casualties among the American Expeditionary Forces in the Marne-Aisne offensive, it should be stated, upon the basis of the officially attested experience of our associates during four years of this war, that of wounded soldiers sent to hospitals for treatment fewer than 1 in 20 die.

Of all the soldiers sent to the hospitals only 45 in every 1,000 die. These include those who die of disease as well as those who die of wounds. Of all soldiers wounded in action more than four-fifths return to service, many of them in less than two months. It is necessary to discharge for physical disability only 14.5 per cent.

These figures are based on an average of both British and French official figures, including both officers and men. The two are averaged together, since American troops are fighting with both the French and the British under conditions which vary.

SIXTY-SIXTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, CHICAGO, ILL., AUGUST 13-17.*

ABSTRACT OF THE MINUTES OF THE FINAL GENERAL SESSION.

The Final General Session of the American Pharmaceutical Association was called to order by President A. R. L. Dolme at 10 o'clock A.M., Saturday, August 17. The minutes of preceding sessions were read by Secretary William B. Day, and approved. (See p. 806, September issue.)

The minutes of the sixth session of the Council were read by Secretary J. W. England, and approved. (To be printed under Council Business.)

Secretary Jeannot Hostmann read the report of the transactions of the House of Delegates, reading first the report of the Committee on Federation of the A. Ph. A. (The report is printed in the September issue of the JOURNAL A. Ph. A., p. 812, and as it is necessary to print this again as part of the minutes of the House of Delegates it is omitted here, except the resolutions or recommendations that were changed or amended.)

The resolution relative to the status of delegates to the House of Delegates was changed or defined by giving delegates from associations the privilege of the floor, but no vote unless they are members of the American Pharmaceutical Association at the time they serve.

The resolutions of the Committee on Federation were freely discussed and afterward adopted.

Acting on a motion of H. M. Whelpley and seconded by Otto F. Claus, the following resolution was adopted:

"That the dues of members serving in the Army or Navy may be suspended during the period of the war, provided that such members do not desire to receive the JOURNAL and the YEAR BOOK."

At the first General Session of the Association H. P. Hynson presented for consideration by the Council an amendment to Article III of Chapter VIII of the by-laws as follows:

"And if the number of members of the American Pharmaceutical Association, who are members in good standing of any State Association, shall equal twenty-five per centum of the actual number of members of such State Association, then the reduction shall be five dollars, making the net amount to be paid three dollars." (P. 805, September issue of the JOURNAL.)

The Council asked for a discussion by the House of Delegates on "combination dues" of State Associations and the American Pharmaceutical Association on the basis of 100 percent membership (instead of 25 percent) of the State Associations in the A. Ph. A., the former collecting the combined dues and remitting to the American Pharmaceutical Association its portion of the dues. (See transactions of Fourth Session of the Council.) The House of Delegates considered the subject and recommended to the General Session that the proposition should be discussed by State Associations and their views ascertained before any fixed rules are established. The same agreement was reached in the Final General Session, and therefore Article III, Chapter VIII, of the by-laws was not amended.

ABSTRACT OF DISCUSSION ON REPORT OF THE HOUSE OF DELEGATES.

F. J. WULLING: We want to develop the federations that we have into a more ideal one. For the present there are two, which we hope will merge very soon. The House of Delegates will be, when this motion carries, put upon a much better and more consistent basis, as I see it, and will be responsible for a development along the lines indicated. To hasten that development some work must be done with the state associations. The supposition is that the delegates who were here from the state associations will carry on that work. I say that is the supposition. Are we going to be sure they will do that work? Are we sure, I mean, or is it the intention to use any part of our organization to help them? I would like to be certain that the

* Continued from page 810, September issue.

matter will not be left just with the delegates, because some of them may forget about it. Some have not been here, and may not come into possession of the information that those have who were here. I would also like to suggest that the American Drug Trade Conference, which is the other line of the development of federation, be helped and stimulated by this Association. I suggest that be done. Now, I have no doubt the officers of the Association will be entirely able to determine. I believe the name American Drug Trade Conference is no longer a good title for that body. I think now that it has been enlarged it ought to be called by another name. I do not want to suggest a name,—possibly American Pharmaceutical Conference would be a sufficient title. The point I am making is that we are being watched,—I mean now the body-pharmaceutic is being watched, even investigated by sources outside of itself. We must be certain that we properly represent ourselves. The name Drug Trade does not represent the entire body-pharmaceutic, but only a part of it, and my suggestion is that a new title be chosen that will be more inclusive, and that this Association take some steps toward that end, if that be necessary.

H. V. ARNY: The particular reason of the suggestion that the Federation Committee be continued is that it is clearly, to my mind, the function of this Federation Committee, having brought the work to this step, to continue on the same lines, and particularly the idea of strengthening the federation through the state pharmaceutical associations. I feel that the Committee will be an absolutely useless organization unless it very actively and aggressively continues work along that line. Dean Wulling seems to think that it is important to consider a special committee to take care of this. I think this can be accomplished by continuing the Committee on Federation. As far as changing the name of the Conference is concerned, that is a detail which will have to be solved by the representatives in that body. There is a promise on the part of the members of the Drug Trade Conference that the scope is to be broadened by including the N. A. B. P. and A. C. P. F., and when that is brought about it will mean a reorganized Drug Trade Conference, at which time this question of change of name may be considered.

EDWARD DORSEY: I would like some light on the matter of bringing our State Association members into affiliation with the A. Ph. A. When we go before our State Association we can not pledge this Association to a specific action at this time. We can not represent one hundred percent membership in our State Association. The matter must be taken up individually. Propaganda work is very necessary. There are some state associations that were not able to meet for the reason of having no delegates at this meeting, or at least not all the delegates were here; some have gone away; some state associations did not hold meetings last year; maybe some will not hold meetings next year. I would suggest that as a number of associations issue bulletins that reach every one of their members, these be asked to help in the propaganda. I will be glad to look after the publicity in Kansas. It seems to me it should be the duty of the Secretary of the A. Ph. A. to get up a very comprehensive statement and ask that it be published in the various state journals. Some do not have a state journal but they have officially adopted some journal; one or the other is true in nearly every state. If such publicity is given it would be very much easier for those that are members of the A. Ph. A. to further the adoption of the plan. If we had a plan outlined that would go into detail relative to questions that might be asked on the subject it would be helpful. I think this body should make it specific so that if we do not succeed in getting in 100 percent of our state association members,—what their position will be, will be made very plain. I would suggest to the Secretary of the A. Ph. A. that he write up this plan in detail, and that it be published in pharmaceutical and drug journals, bulletins, proceedings, and every possible means for publicity, so that all druggists will get the information and without misunderstanding. Then we can go before the state association and present the matter.

CHARLES H. LAWALL: Mr. Chairman, it is not in order at this time to make a motion because there is a motion before the House, but I think when the proper time comes it will be entirely in order to make a motion that the Secretary be authorized to take the matter up for consideration by the Council with the idea of evolving some kind of definite plan which can be laid before the membership of the various state associations. Now in my mind I am of the opinion that this educational work of bringing into line the membership of the state associations can best be accomplished by combining the publicity afforded by the bulletins issued by many of the state associations, with a subsequent call for expressions of opinion by means of

a vote when the annual bill for dues is sent out. After giving proper publicity to all members, when bills are sent out to the associations they might have annexed to them a postcard with the request that they vote yes or no as to whether they would accept membership in the American Pharmaceutical Association on such basis. In that way we can get an expression of opinion which might on the first set of replies show that, say, seventy-five percent were in favor of such affiliation. When that time comes we could put into effect some sliding scale or establish some satisfactory *pro rata* basis.

EDWARD DORSEY: I would like to make one more suggestion. If our Secretary could arrange to plan a propaganda for each month, and present some argument or phase of the question for each month, we would be glad in Kansas to see that it is published in our Bulletin. We would be glad to get it. But it should come monthly, because we do not want to leave the matter for hasty consideration. In the issue before the annual state meeting we want the strongest argument, so there will be a clear understanding by every member of the association.

W. B. DAY: I think Mr. Dorsey has put forth some excellent suggestions here. I had in mind, of course, that the Federation Committee would work this matter out. I was a member of the Federation Committee—I do not know whether I shall be of the next committee, but I will be very glad to coöperate with the members in any way I can. I might say for Mr. Dorsey's benefit, or others who may not have understood the situation quite clearly, that when this matter was first brought up we discussed not affiliation, but merely the rebating of a portion of our dues to members of state associations, provided the total of such members would amount to at least twenty-five percent of the membership of the association. But that would not be actual affiliation with that association, you see; it would be merely putting our membership on a basis of granting a rebate of our dues to members who were already paying dues in state associations. This plan now reported by Secretary Hostmann from the House of Delegates, which I most heartily favor, is of course, somewhat of an experiment. It means that the state associations will be asked to thoroughly affiliate with the A. Ph. A. by taking in their whole membership. It means, therefore, that such state associations as enter into this plan would amend their constitution or by-laws, by-laws presumably, so as to increase their dues by three dollars a year, and then turn in that three-dollar increase in a lump sum to the American Pharmaceutical Association, taking the whole membership in. If that is done—I am secretary of a state association—I know it will be a lot of work. Only about fifteen percent of the members are members of the A. Ph. A. If that is done some members will drop out rather than remain in under increased dues. We would expect to lose some. On the other hand, it is thought that a man will see the great advantage of having the publications of the A. Ph. A. and an opportunity to take part in its affairs. I believe ultimately the state associations would experience greater prosperity than would be possible in the old way. Nearly all, as Mr. Dorsey said, of the state associations publish some kind of a periodical, a leaflet or little journal of one kind or another, a little booklet perhaps, in addition to their annual proceedings, and we will attempt to keep in touch with the state associations through these periodicals either monthly or quarterly, as the case may be, preferably monthly if it can be arranged. I do not expect to see all state associations fall in line this coming year by any means. I think if we get one or two to go in we will be doing very well. We will have demonstrated that the experiment is moving toward success—we will have made a great start. Now if this does not work and we do not get in any state associations, we can go back to some other basis, work by different lines. This is an experiment. We have not provided at present any way of handling the proposition except by state association membership joining *in toto*, joining as a unit.

JEANNOT HOSTMANN: Mr. Chairman, I think you will all agree with me that what we are trying to do here is about the biggest thing that we have ever undertaken, and it is wise to go just a little bit slowly. We have a very good Committee on Federation and I know that there was, in spite of all the work they had to do on the big idea of federation, considerable time devoted, particularly by the Chairman, to this idea of state association federation. I think it would not be just the right thing if we tried to direct or commit ourselves to any particular policy this year. We ought to leave that almost entirely in the hands of that Committee on Federation in conjunction with the officers of the Association, and try to work out some definite plan or several definite plans which can be presented next year. In the meantime the propaganda can be spread among the state associations. I would not like to see the proposition put

forth in such a way that it might, in some state associations, cause a lot of trouble, and as the General Secretary has brought out, even if it was successful and accepted by a number of state associations, it would mean a whole lot of work, changing the constitution, by-laws, and so forth, and I suggest we go about these changes a little bit slowly, and stand behind the Committee on Federation in conjunction with the officers of the House, who are now a continuous body and who really can do something during the year in formulating some plan or plans and bring them forth next year.

F. J. WULLING: We are discussing two questions as though they were one. They are related but they are not the same. The first is the question of increasing the membership by inviting the state associations to cooperate with us, preferably by one hundred percent membership. The second one is the question of stimulating this idea of federation. Now it seems to me the matter is quite simple. The membership question could very probably be handled by the Membership Committee of the Association and the House of Delegates. The question of federation can be handled by the Committee on Federation through cooperation with the members and the officers of the House of Delegates and the general officers. Those are the two separate questions.

H. V. ARNY: I want to supplement particularly what Professor Day said, and point out as an admirable plan of choosing members of the Federation Committee last year, was putting on as ex-officio members, the president and the secretary of the Association. This should be a fundamental practice in making up the Federation Committee. If that is borne in mind there will be no doubt about the Committee being able to handle the problems entrusted to it.

I am not very favorably inclined to Professor Wulling's idea. I want to emphasize that this is not a plan to increase the membership of the A. Ph. A. It is the idea of a *quid pro quo* federation between the state associations and the A. Ph. A. The membership propaganda is incidental. The thing which should be impressed upon the members is, will it not be worth while to raise the membership three dollars and become a member of this greater association; to receive in addition to federation two publications which can not be bought for four or five dollars a year? It is a bargain. This question about one hundred percent—one of my friends sitting by me said we will get ninety percent—that is a detail to be worked out. Every member of a state association is a separate problem for the association secretary to deal with; there are state association men who are back in their dues. We all know some adjustment of that must be made. There will also be a little hitch on life members of state associations coming into the American Pharmaceutical Association. Do not let us bring up those little details. They can be solved. The main point is to figure out whether state associations representing practically one hundred percent, with the discounts you speak of, would not be worth while. Another point brought out, there is no cause for settling this problem next year. Some states are by law so affiliated they can not be brought in. In most states it will mean that necessary amendment of by-laws will have to lay over a year. The delegates from the state associations should talk the matter over in the next state meeting, and in the meantime the subject should be presented in the monthly bulletins or otherwise. I believe one of the strongest points we have is that the Secretary must get in touch with the president of each association to see that he makes this important subject a feature of his annual address. We are making progress; to tie ourselves down to a hard and fast rule would be a mistake.

EDWARD DORSEY: My idea is exactly like that of Dr. Arny, this is not a question of increasing the membership of the A. Ph. A.—I believe in doing that—but by this federation plan the members are getting more for their money, something worth while. We can only do that in a personal way. We want good, strong, representative men to get up and tell the members why they should adopt the federation plan. My idea is to get this propaganda to the state bulletins. The detail is a matter of form; we can work that out; but let us get the propaganda started.

JEANNOT HOSTMANN: Increased membership should be incidental. I am sure none of you want to make the House of Delegates an appendage to the Membership Committee of this Association. The real object of federation should be the immediate arousal of interest of the state associations in the House of Delegates. One hundred percent attendance of delegates is more important at this time than one hundred percent membership. We have a big proposition facing us, let us go slowly and avoid taking any hasty false steps.

Secretary Jeannot Hostmann stated that the matter which had now so freely been discussed was also a subject for consideration before the House of Delegates, and would be included in the minutes, reprints of which would be sent to the delegates and to the officers of State Pharmaceutical Associations. To the question whether one hundred percent membership from State Associations in the American Pharmaceutical Association was necessary for representation in the House of Delegates, the reply was made: "That this was optional; the members thereby secured the benefits of membership in the American Pharmaceutical Association. That provision was made in the by-laws for three delegates from each State Association; they need not necessarily be members of the American Pharmaceutical Association, they have the privilege of the floor but not of vote unless they are members."

The motion made by W. C. Anderson and seconded by H. V. Army, to adopt the report of the House of Delegates, was put to a vote and carried.

Communications, conveying greetings, were read from Mrs. Minnie M. Whitney, President of the Missouri Pharmaceutical Association, and Secretary E. A. Henderson, of the California Pharmaceutical Association.

Chairman J. W. England of the Committee on Revision of the Constitution presented the following report:

REPORT OF THE COMMITTEE ON REVISION OF THE CONSTITUTION AND BY-LAWS.

Your Committee recommends the following changes in the By-laws of the Association:

Amend Chapter X, Article I, to omit the words "Committee on Resolutions" and to include a "Committee on Research," making the Article as amended read:

ARTICLE I. There shall be appointed or elected standing committees as follows: A Committee on United States Pharmacopoeia, a Committee on Transportation and a Committee on Research, each to consist of ten members; a Committee on Pharmaceutical Syllabus to consist of seven members; a Committee on Time and Place of Meeting, a Committee on Ebert Prize, and a Committee on General Prizes, each to consist of three members; and a Committee on Programs.

Amend Article IX, "The Committee on Resolutions," etc., by omitting same

Amend Article X by changing the number of the Article to IX.

Amend Chapter X by adding Article X to read as follows:

"The Committee on Pharmaceutical Research shall be elected by the Council, two members to serve for a term of five years, two for a term of four years, two for a term of three years, two for a term of two years, two for a term of one year, and after the expiration of the one-year term two members shall be elected annually for a term of five years, the Committee on Pharmaceutical Research shall endeavor to promote research along pharmaceutical lines and shall advise the Council as to the use of the research funds of the Association.

Your Committee would offer also certain amendments to the By-laws of the Association recommended by the House of Delegates, as follows:

Amend Chapter XI to read:

HOUSE OF DELEGATES.

ARTICLE I. There shall be and hereby is created a House of Delegates to have and to exercise such functions as may be hereafter specified by the Association.

Change present Chapter XI to Chapter XII.

Change present Chapter XII to Chapter XIII.

Change present Chapter XIII to Chapter XIV.

The amendments were separately read. H. V. Army moved to adopt and Jeannot Hostmann seconded the motion, and after voting thereon the amendments were carried.

Charles H. LaWall asked whether the Chairman of the House of Delegates was constituted a member of the Council. Chairman J. W. England advised that this would require another amendment and could not be acted upon until

next year. It was further stated, however, that the officers of the House of Delegates for this year were already members of the Council, either by election or as representatives from branches.

W. C. Anderson reported for the Committee on Resolutions that only one resolution had been referred to the committee and he moved its adoption; the motion was seconded by Jeannot Hostmann. The report follows:

"WHEREAS, Botanical names are essentially foreign in origin and form and should be dealt with according to the rules of the language to which they pertain:

Resolved, That in the opinion of the American Pharmaceutical Association the Joint Committee on Nomenclature should drop the final 'i' of specific botanical names which retained them in accordance with such rules."

Carried.

INSTALLATION OF OFFICERS.

Before relinquishing his office and prior to the installation of the officers for the ensuing year, President A. R. L. Dohme spoke in part as follows:

"I am sure we all have appreciated during this meeting that we were considering and confronted with a very important and serious matter concerning the future welfare of pharmacy—the great question of federation. While those who have been most encouraged and most enthusiastic in its favor may have some occasion to regret that an adoption of it in some definite form or another was not possible at this time, I feel that they can congratulate themselves that a distinct step in advance was made and that we have practically paved the way for the beginning of this work in a real constructive way. In so far as we have done this I think the Association is to be congratulated, and, the officers of this Association for next year who are about to be installed will have in their hands the consummation of that great question which we all hope will ultimately be settled for the benefit and advantage of pharmacy, namely, the federation of pharmacy.

"On behalf of myself I wish to take this occasion to say that I have greatly appreciated and am extremely grateful for the splendid cooperation which I have received during the last year from all the members, the committees and officers of this Association. Without their help and encouraging support the enthusiasm for the subject of federation would not have been possible. I have found practically from all sides an encouragement and favorable reception of this great idea, launched many years ago by some of our members and from time to time again brought to their attention, particularly by my predecessor in office last year, Dean Wulling. Therefore I believe we can look forward to 1919 for a real constructive year and some real accomplishment for pharmacy, particularly as we hope during that year to get the state associations more or less integrally and enthusiastically connected with our Association. The state associations of this country have about twenty-eight to thirty thousand members, and they are as much interested in the problems in which we are concerned as is possible; their interests are practically our own. In addition to being specially interested only in their local matters as they are now at their meetings, by this cooperation through our House of Delegates their horizon is increased to a more national one, and in so far as it does this, their influence in the affairs of the nation as it pertains to pharmacy is greatly increased.

Proceeding with the installation, President Dohme addressed the President-elect as follows:

"I deem this one of the happiest moments of my life, after having for one year endeavored to honestly and consistently serve this Association for the welfare of pharmacy, that I am able on this occasion to turn over the 'Ship of State' in its present interesting and hopeful condition to a man of ideals such as you possess and a man with the courage of his convictions such as you possess, and a man who I am sure will direct the 'Ship' into channels which will open up great fields of beautiful progress and successful advancement during the year to come. I hand over to you, sir, with great pleasure, this gavel as the presiding officer and place upon you this pin as the insignia of the office of the President of the American Pharmaceutical Association. My hearty congratulations."

President Charles H. LaWall responded:

"Members of the American Pharmaceutical Association, to say that this is a moment of pride is expressing it very mildly. I am indeed sensible of the honor which has been conferred upon me. As a pilot of the 'Ship of State' of the American Pharmaceutical Association I shall try to avoid the rocks which beset the passage of every vessel going through such seas as we are now confronting. I shall not be like the pilot who said that he knew every rock in a certain channel and upon being given the wheel immediately ran the ship aground, and when reproached for that event by the captain saying 'I thought you said you knew every rock in the channel,' 'well,' he replied, 'I did, and that is one of them.' I hope I shall not have to tell you after I have run the ship aground that that was one of the rocks I knew about. I shall use every effort in attaining the ideals for which we are striving and in trying to bring about the consummation or at least furthering the promotion of the plan begun, and I ask for your help and counsel."

President Charles H. LaWall then proceeded with the installation of the following officers: Theodore J. Bradley, *Second Vice-President*; William B. Day, *General Secretary*; Henry M. Whelpley, *Treasurer*; E. G. Eberle, *Editor*; H. V. Arny, *Reporter on the Progress of Pharmacy*; Hugo H. Schaefer, *Local Secretary*; A. R. L. Dohme and Charles E. Caspari, *Members of the Council*. *First and Third Vice-Presidents*, respectively, F. W. Nitardy and Francis Hemm, were absent, and Honorary President O. F. Fuller was not present. The officers installed expressed their appreciation of the honors conferred and added a few words pertaining to their respective offices.

J. W. England moved a vote of thanks to the retiring officers and to all who had contributed to the success, entertainments and hospitalities of the convention. The motion was seconded by H. V. Arny and adopted by a rising vote and the Sixty-Sixth Annual Convention of the American Pharmaceutical Association was adjourned.

GLASSWARE CONSERVATION.

The Conservation Division of the War Industries Board is seeking coöperation of druggists in conserving containers. Such conservation is possible not only by discontinuing many sizes and shapes of bottles but also through uniformity and size of packing boxes. In normal times it is a convenience and desirable to have variety in style and package, but when the Government is aided by discontinuing their multiplicity for the period of the war every druggist will gladly coöperate, especially when the consideration of conference with them is shown.

Related conservation has saved many tons in transportation, cost in manufacture, of fuel and labor, by compactness, needless trimming, avoiding change from the manufacture of one style to that of another, etc. The proposition is, if the manufacturers of bottles can devote their time to fewer styles, and particularly bottles that require least manipulation and material, and that can be most compactly boxed and stored, there will be a great saving all along the line. It is largely a problem of the manufacturers, but retailers can coöperate, and they will.

COMMITTEE REPORTS

REPORT OF THE GENERAL SECRETARY.*

TO THE PRESIDENT AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

Year Books.—Since the last convention the fifth volume of the Year Book has been issued and distributed. Though having the benefit of reviews in all the leading pharmaceutical journals, the sale to non-members has been small. However, a number of libraries now purchase the book each year and it seems likely that this demand will grow.

National Formulary. The sales of the National Formulary, as expected, fell below those of the preceding year, but 6523 copies were sold in 1917 and yielded an income of \$10,973.06. The total sales of the N. F. IV, June 1, 1918, amount to 23,481 copies, with a gross income of \$41,083.50.

A detailed report follows.

A. RECEIPTS AND EXPENDITURES ON ACCOUNT OF NATIONAL FORMULARY IV.

JANUARY 1, 1917, TO DECEMBER 31, 1917, INC.

I. Expenditures.

| | |
|-------------------------------------------------|-------------|
| J. B. Lippincott Co—publication | \$ 2,804.63 |
| Louis Hesse—labels | 17.45 |
| U. S. P. Convention—use of U. S. P. text | 25.00 |
| Transferred to N. F. Revision and Research Fund | 13,903.67 |
| Total | \$16,750.75 |

II. Receipts

Summary of Quarterly Reports of Sales (Midland Publishing Co.)

March 1, 1917

| | Number sold | Price per copy. | Amount |
|--------------------------------------------------------|-------------|-----------------|-------------|
| Bindings. | | | |
| Muslin | 1,777 | \$1.605 | \$2,852.085 |
| Buckram | 863 | 1.935 | 1,669.905 |
| Buckram interleaved | 39 | 2.875 | 112.125 |
| | | | 4,634.115 |
| Credit on exchange to Philadelphia College of Pharmacy | | | 16.50 |
| | | | 4,617.615 |
| Freight | | | 12.43 |
| Remitted to Treasurer | | | \$ 4,605.18 |

June 1, 1917

| | Number sold. | Price per copy. | Amount. |
|-----------------------|--------------|-----------------|------------|
| Bindings | | | |
| Muslin | 1,164 | \$1.605 | \$1,868.22 |
| Buckram | 459 | 1.935 | 888.16 |
| Buckram interleaved | 22 | 2.875 | 63.25 |
| | | | 2,819.63 |
| Freight | | | 53.06 |
| Remitted to Treasurer | | | 2,766.57 |

* Presented at the Sixty-sixth Annual Meeting, A. Ph. A., 1918.

Sept. 1, 1917:

| Bindings. | Number sold. | Price per copy. | Amount |
|----------------------------|--------------|-----------------|-----------|
| Muslin..... | 562 | \$1.605 | \$ 902.01 |
| Buckram..... | 214 | 1.935 | 414.09 |
| Buckram interleaved..... | 10 | 2.875 | 28.75 |
| Remitted to Treasurer..... | | | 1,344.85 |

Dec. 1, 1917:

| Bindings. | Number sold. | Price per copy. | Amount |
|---------------------------------------------------------------------|--------------|-----------------|-------------|
| Muslin..... | 969 | \$1.605 | \$1,555.245 |
| Buckram..... | 439 | 1.935 | 849.465 |
| Buckram interleaved..... | 5 | 2.875 | 14.375 |
| | | | 2,419.085 |
| Overpayment on 49 interleaved copies..... | | | 140.875 |
| | | | 2,278.210 |
| Freight..... | | | 21.75 |
| Remitted to Treasurer..... | | | 2,256.46 |
| Total remitted to Treasurer on account of N. F. IV during 1917..... | | | \$10,973.06 |

B. SUPPLEMENTARY REPORT.

RECEIPTS AND EXPENDITURES ON ACCOUNT OF NATIONAL FORMULARY IV.

JANUARY 1, 1918, TO JULY 25, 1918.

I. Expenditures.

| | |
|-----------------------------------------------------------------|------------|
| J. B. Lippincott & Co.—Publication..... | \$ 205.00 |
| Journal A. Ph. A.—Reprints..... | 6.50 |
| | 211.50 |
| Transferred to National Formulary Revision & Research Fund..... | 4,059.24 |
| Total..... | \$4,270.74 |

II. Receipts.

Summary of Quarterly Reports of Sales, March 1 to June 1, 1918, inc.
(Midland Publishing Co.)

March 1, 1918:

| Bindings. | Copies sold. | Prices. | Amount. |
|----------------------------|--------------|---------|-----------|
| Muslin..... | 460 | \$1.605 | \$ 738.30 |
| Buckram..... | 93 | 1.935 | 179.95 |
| Buckram interleaved..... | | | |
| Totals..... | 553 | | 918.25 |
| Remitted to Treasurer..... | | | \$ 918.25 |

June 1, 1918:

| Bindings. | Copies sold. | Prices. | Amount. |
|----------------------------|--------------|---------|-----------|
| Muslin..... | 516 | \$1.605 | \$ 828.18 |
| Buckram..... | 126 | 1.935 | 243.81 |
| Buckram interleaved..... | 4 | 2.875 | 11.50 |
| Totals..... | 646 | | 1,083.49 |
| Remitted to Treasurer..... | | | 1,083.49 |

JOURNAL OF THE

C. NATIONAL FORMULARY IV.

Summary of Copies Printed and Bound by the J. B. Lippincott Co. to July 1, 1918

| | Muslin. | Buckram | Interleaved | Total. |
|-------------------------------------------------------------------------------|---------|---------|-------------|--------|
| Series A... | 4,500 | 5,000 | 500 | 10,000 |
| Series B... | 5,700 | 4,100 | 200 | 10,000 |
| Series C... | 4,000 | 1,000 | — | 5,000 |
| Total | 14,200 | 10,100 | 700 | 25,000 |
| Series D. Printed but not bound (in stock in sheets at J. B. Lippincott Co.). | | | | |
| Total | | | | 3,000 |

D. SUMMARY OF COPIES RECEIVED AND SOLD BY THE MIDLAND PUBLISHING CO.

Copies Sold.

| Year | Muslin | Buckram | Interleaved | Total |
|---------------------------------------------------------------------------------|--------|---------|-------------|--------|
| 1916 | 7,993 | 7,279 | 487 | 15,759 |
| 1917 | 4,472 | 1,975 | 70 | 6,523 |
| 1918 (1 1/2 Yr) | 976 | 219 | 4 | 1,199 |
| Total sold | 13,441 | 9,473 | 567 | 23,481 |
| Complimentary copies distributed | | 47 | | 47 |
| Stock at Midland Publishing Co., June 1, 1918... | 266 | 588 | 167 | 1,021 |
| In transit from Lippincott to Midland, July 1st. | 500 | | | 500 |
| Totals | 14,207 | 10,108 | 734 | 25,049 |
| Less copies credited to Midland and counted twice (see Dec. 1, 1917, report)... | | | 49 | 49 |
| Corrected totals | 14,207 | 10,108 | 685 | 25,000 |

E. TOTAL RECEIPTS FROM NATIONAL FORMULARY IV.

July 1, 1916, to June 1, 1918, inc.

(Remitted to Treasurer.)

| | | |
|------------------------|-------------|-------------|
| During the year 1916 | \$28,108.69 | |
| During the year 1917 | 10,973.06 | |
| During first half 1918 | 2,001.75 | |
| Total remittances | | \$41,083.50 |

F. ACCOUNT OF NATIONAL FORMULARY III FOR THE YEAR 1917

| | | |
|--------------------------------|--------|--------|
| Receipts—Sales and Collections | \$8.10 | \$8.10 |
| <i>Expenditures.</i> | | |
| Postage | \$.49 | |
| Insurance | \$2.75 | |
| Total | | \$3.24 |

G. STOCK OF NATIONAL FORMULARY III.

(Stored at Lloyd Library.)

| | |
|--------------------|-----|
| Cloth bound copies | 149 |
| Cloth interleaved | 34 |
| Sheep bound | 9 |
| Sheep, interleaved | 28 |
| Total | 220 |

H. ACCOUNT OF PROCEEDINGS AND YEAR BOOKS.

| | | | |
|----------------------------------------------------|----|----------------|------------|
| I. Receipts: | | | |
| Sales Jan. 1, 1917, to Dec. 31, 1917, inc. | \$ | 46 80 | |
| Remitted to Treasurer | | | \$ 46 80 |
| Supplementary: | | | |
| Sales Jan. 1, 1918, to July 1, 1918 | | 48 10 | |
| Remitted to Treasurer | | | 48 10 |
| II. Expenditures, Jan. 1, 1917, to Dec. 31, 1917 | | | |
| <i>Year Book, Volume 3:</i> | | | |
| Stoneman—Publication | | 2,448 61 | |
| Postage | | 8 37 | |
| Total | | | \$2,456 98 |
| <i>Year Book, Volume 4:</i> | | | |
| Eschenbach—Publication and mailing | | 2,893 14 | |
| Labels, postage and expenses | | 19 37 | |
| Total | | | 2,912 51 |
| Supplementary: | | | |
| January 1, 1918, to July 25, 1918. | | | |
| <i>Year Book, Volume 5:</i> | | | |
| Eschenbach—Publication and mailing | | 2,893 57 | |
| Lloyd Library—freight | | 17 64 | |
| Postage, labels and expenses | | 33 87 | |
| Total | | | 2,945 08 |
| III. Stock of Proceedings Stored in Lloyd Library: | | | |
| Cloth bound | | 3,312 (copies) | |
| Paper bound | | 1,369 | |
| Unbound | | 2,617 | |
| IV. Stock of Year Book Stored in Lloyd Library: | | | |
| Vol. 1, 1912 | | 265 (copies) | |
| Vol. 2, 1913 | | 466 | |
| Vol. 3, 1914 | | 457 | |
| Vol. 4, 1915 | | 313 | |
| Vol. 5, 1916 | | 323 | |

I. ACCOUNT OF BADGES AND BARS.

Jan. 1, 1917, to Dec. 31, 1917, inc.

| | | | |
|----------------------------------------|---------|--|---------|
| I. Receipts from sale of Badges: | | | |
| Remitted to Treasurer | \$24 25 | | \$24 25 |
| II. Expenditures: | | | |
| A. H. Fetting—25 Indianapolis Bars | 21 25 | | |
| A. H. Fetting—Special order, back bars | 7 60 | | |
| Total | | | \$28 85 |
| III. Stock on Hand, July 1, 1918: | | | |
| Gold badges | 11 | | |
| Gold bars | 102 | | |

J. SUMMARY OF RECEIPTS BY MONTHS.

Jan. 1, 1917, to Dec. 31, 1917.

| Months | Badges and Bars | Proc. and Year Book | N. F. III | N. F. IV. | Misc. | Total Remitted to Treasurer. |
|-----------|-----------------|---------------------|-----------|-------------|--------|------------------------------|
| Jan. | | \$ 8.00 | | | | \$ 8.00 |
| Feb. | \$ 8.00 | 4.00 | \$6.75 | | | 18.75 |
| Mar. | | 2.00 | | \$4,605.18 | | 4,607.18 |
| Apr.-May. | | 3.60 | | | | 3.60 |
| June... | | 7.20 | | 2,766.57 | | 2,773.77 |
| July-Aug. | 16.25 | 8.00 | | 1,344.85 | .50 | 1,369.60 |
| Sept. | | 4.00 | 1.35 | | | 5.35 |
| Oct. | XX | 6.00 | | | | 6.00 |
| Nov. | XX | | | 2,256.46 | 2.00 | 2,258.46 |
| Dec. | | 4.00 | | | | 4.00 |
| Totals | \$24.25 | \$46.80 | \$8.10 | \$10,973.05 | \$2.50 | \$11,054.71 |

K. SUPPLEMENTARY.

SUMMARY OF RECEIPTS BY MONTHS.

Jan. 1, 1918, to July 1, 1918, inc.

| | N. F. IV. | Proc. and Year Book. | Total Remitted to Treasurer. |
|-----------|------------|----------------------|------------------------------|
| Jan.-Feb. | \$ 918.26 | \$ 7.20 | \$ 925.46 |
| Mar. | | 13.60 | 13.60 |
| Apr.-May | 1,083.49 | 4.00 | 1,087.49 |
| June | | 23.30 | 23.30 |
| Total | \$2,001.75 | \$48.10 | \$2,049.85 |

Respectfully submitted,

WM. B. DAY, *General Secretary.*

REPORT OF THE COMMITTEE TO INVESTIGATE "SHORT-TERM, CORRESPONDENCE, SUMMER, AND OTHER SIMILAR COURSES IN PHARMACY."*

In preparing this report I have divided the whole number of institutions into two general groups, those that are members of the American Conference of Pharmaceutical Faculties and those that are not. The first group presents no difficulties, but handling the second group is an entirely different matter. In the United States there are seventy-one colleges registered or accredited by New York and we know of twenty-one other institutions or individuals giving instruction in pharmacy. Making allowance for some that we very likely have not heard of, the grand total must be well above ninety.

I have classified these non-Conference schools that give short courses by states, giving such specific information as we have been able to obtain, including name and location, length and number of courses in a year, tuition and some other statistics. From the correspondence and other literature I have been able to summarize the information and draw some general conclusions that I have embodied in the report.

CONFERENCE SCHOOLS.

As far as it was possible to determine there are only eight of the forty-four Conference Colleges that give any sort of short course. A few others reported that they had done so at some time in the past, but had discontinued the practice. Four of the eight, the College of Pharmacy

* From report of a committee appointed by the American Conference of Pharmaceutical Faculties, read before that body and also before joint meeting Section on Education and Legislation, A. Ph. A.; National Association of Boards of Pharmacy, and A. C. P. F., Chicago, 1918.

of the City of New York and the Colleges at Michigan, Wisconsin and Nebraska Universities, conduct summer sessions in which they give courses the same as or similar to regular courses. At Nebraska the courses are regular in every particular. Michigan's catalogue states that there are "no formal entrance requirements" and that these courses "are open to all those who are qualified to pursue them with advantage. Credit may be applied toward a degree at any subsequent time, when the student becomes a candidate for a degree." Wisconsin's catalogue says "Students who do not desire to become candidates for a degree need not comply with the entrance requirements. They may register in any course or courses the work of which, in the estimation of the instructors in charge, they are able to carry with advantage. Credit toward graduation, however, will be given only after regular matriculation." Of the work, they say, "These courses are given primarily for the benefit of apprentices employed in drug stores, who wish to avail themselves of the opportunity to do university work in practical pharmacy." At the New York College the entrance requirements are the same as for regular courses and no credit whatever is given toward a degree.

Three schools, Kansas and Wisconsin Universities and Highland Park College, Iowa, conduct correspondence courses through their extension departments. Some of these are for those who wish to become registered pharmacists and some are technical courses and under certain conditions may count toward a degree. The course at Kansas "is designed for prospective students and apprentices," that is, "to help students to prepare for a pharmacy course" and not as a preparation for State Board examinations. The course is not controlled by the School of Pharmacy but is entirely under the supervision of the Correspondence School of the University.

The School of Pharmacy at Corvallis, Oregon, offers what they call a "Vocational Course, requiring two years of High School work for entrance and not leading to a degree. It runs through two years (length of year not stated, presumably the same as the regular year) and is intended for drug clerks who possess the amount of practical experience required by the majority of State Boards of Pharmacy and who wish to review the work preparatory to entering upon the examination demanded for registration as licensed pharmacists."

Highland Park College in Iowa gives what it entitles the "Best Possible Short Course—Six Months." Some paragraphs from their catalogue will give the desired information better than any comment of mine. "Anyone who expects to become a registered pharmacist can not do better than to complete a course of not less than a total of fifty weeks leading to a degree and a diploma. The pharmacy graduate is broader and better educated because of it. But there are many who have had store experience, but lack the technical knowledge necessary to meet state board examination requirements. Circumstances are such that they are not able to attend college. For the benefit of these persons, this course is designed. It allows them to get the best education possible in a short time and be prepared to pass their state board examination. There are no entrance requirements to this course other than an education equal to eight grades of the public schools. Each student does laboratory work and elects the subject which he needs. We do not recommend the course as a substitute for a regular course in pharmacy. No short course, however practical, is a satisfactory substitute for a complete thorough course. Many students have been able to pass their state examinations after three months in this course, but students are urged to complete as much as possible because of the great value of the course to them. The advantage of this course over 'plugging' courses, which consist largely of quizzing, is apparent. The tuition is much less, time required no longer, and the work done in the course is of great practical value to the student. He is prepared for examination as a fully registered pharmacist."

It goes without saying that the short courses given by the few institutions that also give regular courses are superior in most particulars to the typical short course school. The staff of teachers is larger, there is a real equipment in the way of laboratories and library, the atmosphere must be somewhat different. In fact, beginning with the absolutely regular work given by some of the Conference colleges there is a gradual shading through this group into the characteristic short course given by the typical "plugging" school.

NON-CONFERENCE SCHOOLS.

The non-Conference institutions, twenty in number, are distributed throughout fourteen states, as follows: Arkansas, Iowa, Kansas, Maryland, Minnesota, Nebraska, Oregon and

Wisconsin, one each; California, Georgia, Illinois, Indiana, Missouri, two each; Michigan, three. As you notice, the states are in the central part of the United States except for two on the Pacific coast, one on the Atlantic and one in the South. I have no explanation to offer as to why they are where they are. It occurred to me that some one would be sure to raise the point that they would be most numerous where the standard colleges had very high entrance requirements or large tuition, or both, but that is not the case. They are to be found in those states but in no greater numbers than in other states. One of the number is registered and one accredited by New York and some others give courses of two, three and four years leading to degrees, leaving sixteen that give nothing but the short course.

These schools are hard to classify, each is a law unto itself. They vary in length from six weeks to nine months, the greater number being about three months. Some run continuously and students enter at any time but they are more often timed to have students ready for the periodical Board examinations. The course is then repeated two or three or four times a year. In many cases, individuals are allowed to continue in attendance until they become registered. That alone is the end sought. The smallest tuition is twenty-five dollars for three months, the highest, one hundred and twenty dollars for three months. The schools have been in existence thirty-two years, twenty-four years, twenty years, many, from five to ten years. Almost nothing is said about teaching staff. Sometimes there are two or three, more often one. Entrance requirements, if mentioned at all, get only passing comment. There are none, they say, or, they are only such as are required by the Board in the state in which they wish to take the examination, or, they require a common school education. As the director of a standard college aptly expressed it, "the fee constitutes about the only entrance or scholastic requirement." It is impossible to determine the number of students attending. Much is said about the proportion passing Board examinations but little else. It is fair to presume that there is a goodly number. These people are not in business for the fun of it. One institution, twenty years old, has had eleven hundred students; an individual teaching private classes has had as many (number of years not specified); one, twenty-four years old has had sixteen hundred students; another, seven hundred in eight years; one correspondence school claims to have had twelve thousand students since it was incorporated in 1885. Statements as to equipment are conspicuous by their absence. Blackboards and charts are mentioned several times, the expression "laboratory work" appears once (what sort and how much is left to our imagination), there is one and only one mention of a "well equipped pharmaceutical laboratory."

Some of these do not call themselves schools and such sent no printed literature but simply wrote that they conducted private classes. Possibly these should not be included in this report, but since we were to investigate "short-term, correspondence, summer, and other similar courses," I have so interpreted it. When an individual says that he has had more than eleven hundred students in his classes it can hardly be called tutoring. One of these letters, written by the secretary of an accredited college, I want to quote almost in its entirety. "Regarding your inquiry the College of Pharmacy only conducts the regular two term degree course. However, the writer has had considerable experience with special short course instruction and will start a class about July first. Just finished with both Missouri and Kansas class and have several preparing for the Okla. exam. next month. My price is seventy-five dollars for the course, but if you fail to register, which is not at all likely, with the first two months I will help you again with my next class until you register for that fee. You will need a new U. S. P. or Army or Remington Pharmacy and a chemistry. I have all the drugs for identification and give you the necessary lab. instruction. Had eleven pass the last Mo. and seven last Kans. all with their first course of instruction." Another, written by a man who is Dean of an accredited college, says, "My course consists of about one hundred and twenty-five hours of the following subjects: Chemistry, Materia Medica, pharmacy, toxicology, the pharmacopoeia and pharmaceutical arithmetic. My price for the course is fifty dollars. I have taught over eleven hundred students in my private course. My recommendation is the success with which my pupils have passed the different Board of Pharmacy also the Naval and Army examinations."

It is evidently a lucrative business, witness the beautiful engraved stationery upon which some of these people conduct their correspondence. One of these letters indicates considerable versatility on the part of the author. Besides conducting a ten weeks' class four times a year during two or three evenings a week from seven to nine, his stationery sets forth that he is an

"analytical and manufacturing chemist, analyses, formulas perfected, toxicological work (whatever that may be), expert testimony in legal cases, consultation on chemical problems, preparations duplicated"—all this and more engraved on his letter head.

While one's sense of humor is uppermost, some statements are exceedingly ludicrous but, taken seriously, they are pathetic, even tragic. A man from Arkansas says, "Now it is not necessary that you should have studied Pharmacy before entering school. I have had but few men who have ever seen a school of Pharmacy before entering mine, and really I would just as soon that they did not. Statistics show that only thirty percent of the candidates of the State Board of Pharmacy are successful, but I have an average of eighty percent of successful students. If you fail to pass the State Board, I give you another course free of charge. I have a way of teaching by lectures, charts and actual laboratory work that so simplifies pharmaceutical processes and chemical equations that you cannot help but remember them ever after." All in six months for seventy-five dollars. One wonders what he would take to teach some of us teachers how to do it. Probably this "way" of his is some special endowment that heaven bestows upon a favored few.

Down in Georgia there is a school giving a three months course of which they say, "we have the greatest short course in Pharmacy in the U. S. A."

It has just been reported to us that a certain school has gone out of business and for the state in which the school was located and for pharmacy in general we rejoice. Because their literature shows very well the attempts to make advertising alluring to the uninitiated as well as the kind of instruction offered in a quiz school I am going to quote a few statements, even though the institution no longer exists. Of the course it was said: "The course is not a cram one of State Board questions and answers, but a systematic presentation of the practical parts of a long course in pharmacy. We use the Alphabetic method of teaching. This is a new method. We go from *Acacia* to *Zingiber* and we go over the ground four times." Think of it—four times in fourteen weeks and yet it is not a cram course. In their course of instruction eleven things were enumerated. They were, "Materia Medica, Pharmacology, Chemistry, Preparations, Comment on the Pharmacopoeia, Dictionary, Unofficial Materia Medica, Laboratory Work, State Board Questions."

From Iowa comes this statement: "Between five and six hundred men from this school have registered in the various states during the past six years and the average time they spent in school was between twelve and thirteen weeks. These students show as good a knowledge of their subjects in the examinations as do the average graduates of the regular colleges. They just as frequently write the highest grades in the examinations as do the graduates of the regular colleges. Almost every one who comes to this school has had sufficient practical experience to entitle him to take his state examination. Many of the graduates of the regular colleges have never had any practical experience in the drug business. The course of instruction in the ——— school is adapted to the needs of the man with practical experience. It is manifestly unfair to compel him to take his instruction with those who have never had a day's experience in the drug business." Note that last sentence. Is it not a clever appeal to the vanity of many a drug clerk? To continue, "If one is inclined to doubt the thoroughness of the instruction in the ——— school, and to question the possibility of covering all the practical features of a regular college course in a three months' term just remember that more men from the ——— school have registered in the various states during the past six years than have been graduated by any of the regular colleges of pharmacy with the exception of the Philadelphia, New York and Brooklyn colleges. It is a significant fact that during the past two years thirty-two students from other schools and colleges of pharmacy have attended the ——— school. Twenty-nine of these are now registered pharmacists." The subtlety of such advertising is apparent to you all, I am sure, as well as the fact that there is no logic in such argument to those who know conditions.

Out in Kansas there is a school which has a slightly unusual attitude toward previous education, in that it seems to bid especially for people who have attended colleges of pharmacy. Its director says, "The better the educational advantage of the student, the easier it is to complete the work in a short time." Then a list of names and addresses is given together with the colleges attended. It is claimed also that from fifty to sixty percent of those passing Kansas and Oklahoma Boards are from this institution. In the previous nine months there were "received one hundred and thirty-five tuitions for the instruction of students and all of these are holding

certificates as Reg. Ph." Moreover, "My work ranks with universities and I wish to keep it up to that standard. Students not satisfied with the instruction received in my classes may have their money refunded at the end of the course. I have made this guarantee for many years, and in no instance have I failed to prove the quality of my work. My boys and ladies are such a good boost that I find advertising unnecessary." There are three, three-months sessions for those taking Kansas examination and as many for the Oklahoma examinations, at one hundred and twenty dollars per individual, and a six weeks review course for sixty dollars begins six weeks prior to each examination.

The letters from the president of a Maryland institution are still different. Almost as much is said about his publications as about the class work. He writes, "Why not get my first volume of the quiz book which is now issued in paper cover and comprises seventy pages of questions and answers like the specimen pages herewith enclosed. This book costs one dollar post-paid and the amount so paid is credited on your tuition when you enter the resident work. If you contemplate entering it will pay you well to get my book and whether you enter or not, the book is worth many times the price to the student preparing for the State Board of Pharmacy. I hope to hear from you by return mail ordering the "——— Quizzer," and he appends to his signature "author of several books."

Down in Missouri there is a school which sends a contract in which it agrees to do several things of interest to us. "(1) If the student completes the Extension Course in Pharmacy under the direction of ——— and then fails to gain registration in ——— (blank for state) at one of the two examinations to which his fee entitles him, ——— agrees to refund the total amount of tuition paid. (2) The student may transfer or sell the Extension Course to anyone without extra expense, provided that he has it fully paid for and not more than three-fourths used. (3) Should the student decide to attend the Resident School at any time, he will be given credit for the full amount which he has paid for his Extension Course, provided he has his Extension Course fully paid for." It is called a Practitioner's Course, requires from six to eight weeks and costs seventy-five dollars.

In spite of the fact that a few of these institutions giving short courses are not open to criticism and in spite of the other fact that the literature of others leaves so much to conjecture, enough is known to make it evident that the typical short course schools are doing pharmacy no good. From the standpoint of any particular standard college they might be ignored but the profession as a whole cannot afford to do that. The public has these registered pharmacists thrust upon it and only the recording angel knows how many fatalities are traceable to errors of incompetents. Then the good name of our profession is besmirched. How can we expect professional standing while such a condition exists? Some of the institutions that are in states where prerequisite laws have been enacted must soon be singing their swan songs unless under stress of present war conditions some reactionary legislation is obtained. Obviously, this is no time for those of us who want to see pharmacy receive the recognition the real thing deserves, by the Government and by the people, to "fall asleep at the switch."

EDITORS NOTE.—The part of the paper which included a list of the schools and statistics concerning them and which was a necessary feature of the report to the American Conference of Pharmaceutical Faculties is omitted since it would probably be of little interest to the general reader.

Miss Cooper desires to say that the other members of the committee, Prof. Charles O. Lee and Prof. A. W. Linton, rendered valuable assistance in obtaining the necessary facts for this report. In quoting from literature of the schools, the capitalization, abbreviation, etc., have not been changed in the copy.

REPORT OF THE COMMITTEE ON THE PHARMACEUTICAL SYLLABUS.*

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The Committee on the *Pharmaceutical Syllabus* respectfully submits the following report:

At a well attended meeting held in Indianapolis on August 29, 1917, Dr. Willis G. Gregory tendered his resignation as chairman and insisted that it be accepted, which was done with great

* Read before General Session, A. Ph. A., Chicago meeting, 1918. The item of expense was referred to the Council.

regret, as he had served the Committee as chairman since its inception, and during the difficult formative period while the first two editions of the *Syllabus* were prepared and published. Dean Theodore J. Bradley, of the Massachusetts College of Pharmacy, and Professor Clyde M. Snow, of the University of Illinois School of Pharmacy, were elected Chairman and Secretary-Treasurer, respectively, and it was decided to proceed with the preparation of a third edition of the *Syllabus* to become effective in 1920.

New members of the Committee have been appointed during the year as follows: Edwin L. Newcomb, of the University of Minnesota College of Pharmacy, from the American Pharmaceutical Association; Otto W. Osterlund, of Philadelphia, Pa., from the National Association of Boards of Pharmacy; and Albert Bolenbaugh, of the Medical College of Virginia School of Pharmacy, Richmond, Va., from the Conference of Pharmaceutical Faculties. Professor Bolenbaugh was later given leave of absence because of having been commissioned in the Sanitary Corps of the United States Army.

Bulletins sent by the Chairman to members of the Committee, from time to time, have been published in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, which has thus provided the necessary publicity for our work.

The following sub-committees, to have charge of the revision of the three principal sections of the *Syllabus*, were appointed in November:

Materia Medica: H. H. Rusby, Chairman; M. C. Beebe, G. M. Beringer, John Culley, E. E. Faulkner, C. B. Lowe, E. L. Newcomb.

Chemistry: J. A. Koch, Chairman; P. G. Albrecht, T. J. Bradley, E. G. Eberle, C. W. Johnson, O. W. Osterlund, C. H. Skinner.

Pharmacy: W. H. Rudder, Chairman; W. C. Anderson, Albert Bolenbaugh, G. C. Dickman, W. G. Gregory, H. B. Mason, C. M. Snow.

The work of the Committee has been greatly hampered by the difficult conditions due to the war, but substantial progress has been made on the work; the sub-committees have about completed the revision of their several sections and are expected to submit them soon to the whole Committee for final revision and adoption. It has been decided to prepare a tentative outline for an additional year of work leading to the degree of Pharmaceutical Chemist, and some of the necessary work on this has been done.

A year ago the Committee paid off all of the indebtedness incurred in connection with the issuance of the second edition of the *Syllabus*, and there is now a small balance in the treasury which it is hoped will accumulate sufficiently so that no long continuing debts need be incurred when the third edition is issued. With this end in view, the Committee requests and recommends that your organization continue its annual contribution of twenty-five dollars towards the necessary expenses of the work of the Committee.

Signed,

THEODORE J. BRADLEY, *Chairman*.

AUGUST 1, 1918.

REPORT OF THE COMMITTEE ON COMPULSORY HEALTH INSURANCE.*

Compulsory health insurance still remains one of the most vital issues affecting the drug trade of the country, but there is little to report at this time in addition to the data contained in the paper read at the Indianapolis meeting last year by the Chairman of this Committee. During the past winter only four State legislatures were in session, and the proponents of the idea therefore lacked the opportunity to carry on a vigorous legislative campaign. In the meantime, however, they have not been idle. They have carried on their propaganda in all sections of the country, and it needs no prophet to see that during the coming winter a bill providing for the enactment of compulsory health insurance will make its appearance in practically every legislature throughout the country. It will then be the duty of the drug trade to organize an opposition and do what it can to pull the fangs of this German-made scheme.

At the present time the most dangerous situation exists in the State of California. Sentiment seems to be more in favor of health insurance there than elsewhere, and the advocates of the idea are concentrating their fire in order to get a law enacted in one State before making

* Read at the second General session, A. Ph. A., Chicago meeting, 1918.

a big drive elsewhere. California therefore becomes the initial battle-ground. It occupies the front trenches, and if the line breaks the Huns will rush over into other States.

The situation in California is a little peculiar. Before a compulsory health insurance measure can be enacted the State constitution must first be amended. We understand that an amendment goes before the voters this fall and that the State-wide campaign now being conducted is for the purpose of showing the necessity of this constitutional amendment. If the amendment is approved, the battle will then be carried into the legislature, and a well-organized effort will be made to secure the enactment of a drastic law. It behooves the druggists of California not to wait but to assist immediately in the campaign against the adoption of the constitutional amendment, and, if that passes, to carry their opposition subsequently into the legislature.

The people must be told the truth about compulsory health insurance. As a matter of fact, it has recently been discovered that the whole propaganda originated in Germany. During the years prior to the present war Germany was out after world trade. She was ambitious to conquer international markets. The great stumbling block was American competition. How could she lessen it? One brilliant method would be to foist compulsory health insurance on the United States and thus greatly increase the national cost of production. Not only, moreover, did Germany initiate such propaganda efforts in this country, but in every country where she suffered keen competition.

An international society was established to foster the idea. Apparently the whole movement was educational. It was ostensibly altruistic. As much as she could, Germany kept in the background and used others to pull her chestnuts out of the fire. Her own connection with the movement has never been frankly proclaimed, but Dr. Frederick L. Hoffman, in his early investigations of the subject, found every trail running straight to Berlin.

The fact is that Germany has been saddled with the economic burden of compulsory health insurance for many years. She couldn't escape it. The Socialist party foisted it upon her. It greatly increased her own cost of production, and the only thing she could do was to equalize matters by getting compulsory health insurance adopted likewise in other countries.

Certainly it is an ironical situation that confronts us at the present time. On the one hand, we are at war with Germany. On the other, we are earnestly discussing a German movement and are seriously considering the adoption of it. If we defeat Germany on the field of battle, we still run the risk of being beaten by her at home. Because, if the United States adopts compulsory health insurance, it will so add to the cost of production as to make it relatively simple for Germany to compete with us in the markets of the world after the war is over. If we take up with this insidious movement, we shall be playing directly into Germany's hands.

Druggists, even more than other classes in the community, are threatened by this menace. For, if compulsory health insurance ever becomes a fact, it would mean nothing less than that three-fourths of the people of the State would get their drugs from the State itself—and not only their drugs but their medical, dental and surgical service as well. Seventy-five percent of the druggist's business would fly out of the window. Not only that, but his taxes would be quadrupled. The retail drug business as we know it to-day would be practically driven from the field. Only the strongest would be able to survive, and the great majority of druggists would find their occupations gone.

These sound like the statements of an alarmist, but they represent nothing but the truth. If there was ever a time when the druggists of the country should be awake to their own interests, that time is now and here. Organized opposition to compulsory health insurance should be perfected in every State in the Union, and wherever a health insurance bill makes its appearance, it should be fought with all the energy and vigor at our command.

Respectfully submitted,

HUGH CRAIG,
C. A. MAYO,
FRANK H. FREERICKS,
J. H. BEAL,
W. C. ANDERSON,
HARRY B. MASON, *Chairman*.

REPORT OF COMMITTEE ON QUALITY OF MEDICINAL PRODUCTS
AMERICAN PHARMACEUTICAL ASSOCIATION.

(Continued from September, No. p. 817.)

DOGGRASS: Oftentimes an excessive amount of stem bases and rootlets are present. If gathered in America it is apt to be the rhizome of any species of the genus *Agropyron*. Bermuda grass has been cut to simulate doggrass and imported and sold as such. The substitution is readily detected by the absence of the bright yellow rhizomes of the genuine and the excessive amount of tracts and rootlets. It may be imported under its proper name of Bermuda Grass.

O. A. FARWELL.

ERGOT: Samples yielded to the official fluidextract menstruum 15.6%, 13.3%, 15.8%, 16.8%, 16.9%, 14.6%, 19.3%, 13.3%, 16.06%.

E. L. PATCH.

EUPHORBIA PILULIFERA: There is great variation in the products sold under this name. In material particulars they differ from the N. F. description.

E. L. PATCH.

FENNEL: Examination of samples has disclosed the fact that bitter fennel, from *Foeniculum piperitum*, Sweet., has been substituted in some instances for the true material. This species is not cultivated and may be distinguished by its very much smaller size and the decidedly bitter taste and flavor of its volatile oil. U. S. Department of Agriculture. Ash 8.95%, 9%, 8.5%, 9.2%.

E. L. PATCH.

FROSTWORT: *Lechea major*, Mx. is often collected and put on the market under this name. The true frostworts are species of *Trichasterophyllum*.

O. A. FARWELL.

GADUOL OR MORRHUOL: Much has been offered differing from the product originally marketed under this name. Claim—"An alcohol extract from Cod Liver Oil." Original sp. gr. 0.944; characteristic odor; greenish black color. Soluble in equal volume of 95% alcohol. Insoluble in water. Washed with water acidulated with hydrochloric acid the washings give an abundant precipitate with Mayer's solution and solution of iodine.

Sample 1: Sp. gr. 0.920; odor like original; color like original. Does not give any alkaloidal reactions.

E. L. PATCH.

Sample 2: Odor different from original. Not as dark in color; slight precipitate with iodine solution, none with Mayer's.

E. L. PATCH.

GELATIN: Three shipments had to be rejected on account of the presence of an undue amount of arsenic.

H. ENGELHARDT.

Contained zinc, and zinc and copper.

U. S. DEPARTMENT OF AGRICULTURE.

GENTIAN: The roots of various American species of gentian and of the western species of *Frasera* have been offered as substitutes for the official gentian.

O. A. FARWELL.

GINGER JAMAICA: Alcoholic extract, 5%, 3.5%, 6%, 5.8%, 9.3%, 8%, 6.5%, 4%, 4.5%, 6.9%, 6.3%. Ash 4.8%.

E. L. PATCH.

GOLDENSEAL: Of five shipments only one had to be rejected, containing only 0.71% of ether-soluble alkaloids.

H. ENGELHARDT.

One sample 3.18%.

E. L. PATCH.

GRINDELIA: Extractive 41%; average 36%. Ash 9%. Extractive 43%; ash 9%.

E. L. PATCH.

GUAIAIC RESIN: Ash 4.89% very little soluble in alcohol. Ash 3.83%, alcoholic extract 38.3%; ash 3.5%, alcoholic extract 23.9%.

E. L. PATCH.

HELLEBORE AMERICAN: Assayed by method of Department of Agriculture given for white hellebore, alkaloidal contents were 2.05%, 1.36%, 1.333%, 2.07%, 2.3%.

E. L. PATCH.

HYOSCYAMUS: Sixteen shipments were examined, of which nine assayed below U. S. P. strength. One shipment marked "herb" assayed as much as 0.235% of total alkaloids; this sample consisted of stems, leaves and roots. The leaves assayed 0.115% of mydriatic alkaloids.

H. ENGELHARDT.

"Stems," 0.052%. Leaves by U. S. P. IX method 0.069%, 0.044%, 0.068%, 0.054%, 0.09485%, 0.214%, 0.156%, 0.021%, 0.027%, 0.1446%, 0.0752%, 0.0867%, 0.108% (U. S. P. 0.065%).

E. L. PATCH.

HOREHOUND: Examination of importations has disclosed that in some instances *Ballota hirsuta*, Benth. was substituted for *Marrubium vulgare*.

U. S. DEPARTMENT OF AGRICULTURE.

IODINE TINCTURE: U. S. P. 6.5 to 7.5 Gm. iodine in 100 Cc., 4.5 to 5.5 potassium iodide in 100 Cc.; 7.69 I, 7.11 I, 7.51 I, 6.98 I, 7.32 I, 7.15 I, 7.1 I; 7.3 Gm. I, 4.85 Gm. KI, 6.77 Gm. I, 4.795 KI.

E. L. PATCH.

IPÉCAC: Of fifteen shipments of Carthagena, four were below official standard. Of nine shipments of Rio, 2 were below.

H. ENGELHARDT.

2.09%, 2%, 1.95%, 2.28%, 2.01%, 1.92%.

E. L. PATCH.

IRON ARSENATE: Had to be rejected on account of containing ferric arsenate.

H. ENGELHARDT.

IRON CACODYLATE: A small shipment of this chemical had to be rejected on account of giving a dark red solution with water.

H. ENGELHARDT.

IRON DIALYZED: We experienced quite a difficulty with this preparation. Two lots had a cloudy appearance and did not readily mix with water.

H. ENGELHARDT.

IRON REDUCED: Some shipments contained excess of sulphides. They contained about 95% of reduced iron when determined by the U. S. P. process.

H. ENGELHARDT.

94% reduced iron, slight excess of sulphide; 94.34%, 92.1%, 85.14%, 90.8%.

E. L. PATCH.

JALAP: The quality of this drug was all that could be desired. Only two shipments of ten had to be rejected on account of assaying less than 7% resin. One sample was submitted which apparently was Tampico jalap. It differed only in shape from the official drug and assayed 18% total resin of which only 4% was soluble in ether.

H. ENGELHARDT.

7.65%, 3.65%, 7.15%, 7.1%, 5.6%, 16.8%.

E. L. PATCH.

JALAP RESIN: One sample, only 78% soluble in alcohol, 28% soluble in water. Rejected. Another, 96% soluble in alcohol, 10% in water. Rejected.

E. L. PATCH.

JUNIPER BERRIES: Berries of the western species of that section of *Juniperus* including *J. scopulorum*, have been gathered and offered for juniper berries.

O. A. FARWELL.

Shipments in many instances contained a considerable number of discolored and withered berries. Should not contain more than 10% of immature, discolored, and withered berries or foreign material.

U. S. DEPARTMENT OF AGRICULTURE.

LICORICE ROOT: Shipments of licorice root have been imported which proved to be derived from *Glycyrrhiza uralensis*, an Asiatic species, not recognized in the U. S. P. but equal in every respect to the official. By a ruling of the Department of Agriculture this can be imported if properly named and stamped "not U. S. P." which means it can be used for non-official preparations. Since the beginning of the war licorice root has steadily deteriorated. Culls are frequently included and the stems even to a very large percentage.

O. A. FARWELL.

| | |
|-------------------------------------------------|-------------------------------------------------|
| Extractive 29.4%, Ash 6.8% (U. S. P. limit 7%). | Extractive 21.4%, Ash 7.4%. |
| Extractive 24.6%, Ash 6.8%. | Extractive 31%, Ash 8.8%. |
| Extractive 26.96%, Ash 6.4%. | Extractive 36%, Ash 8.55%. |
| Extractive 40.3%, Ash 5.92%. | Extractive 24%, Ash 10%. |
| Extractive 27%, Ash 8.6%. | Extractive 8.34%, Ash 3.5% (not licorice root). |
| Extractive 28%, Ash 6.6%. | Extractive 30.32%, Ash 8.6%. |

LICORICE EXTRACT, POWDERED: Extractive 79.2%, Moisture 6.2%, Ash 4.6%.

E. L. PATCH.

LIME CHLORINATED. Standard 30% chlorine.

20% available chlorine. 8%, 10%.

34% available chlorine 30.7%, 33.7%.

27.01%, 26.97%, 32.98%, 33.24%, 31%, 32.27%.

34.75%, 34.75%, 30.48%, 30.48%, 31.56%.

E. L. PATCH.

LOBELIA: Alkaloid 0.52%, 0.5%, 0.54%, 0.56%, 0.5%, 0.56%, 0.6%.

E. L. PATCH.

LUPULIN: Six shipments were examined of which two were rejected. One yielding 16.7% ash and one yielding 40% of ash and being soluble in ether only to an extent of 44.1%.

H. ENGELHARDT.

MAGNESIUM CARBONATE: Water soluble 0.015, U. S. P. 0.01, CaO 0.88% (U. S. P. 0.88), MgO 39.46% (U. S. P. 39.2%). Water soluble 0.014, CaO 1.95, MgO 40.40%.

E. L. PATCH.

MAGNESIA, CALCINED: MgO 94.28%, moisture 4.32% (U. S. P. MgO 96%).

MgO 95.45%, moisture 3.2%.

MgO 94.64%, moisture 6%.

MgO 89.3%, moisture 2.69%.

MgO 92.8%, moisture 6.45%.

E. L. PATCH.

MALE FERN: Extract of male fern adulterated with 25% castor oil. It contained only 8% crude filicin instead of 24%. *The Apothecary*. Oleoresin. This article is practically unobtainable. We succeeded in obtaining a few lots but these had to be purified on account of assaying less than 27% of crude filicin, the requirement for good oleoresin of male fern.

H. ENGELHARDT.

MANACA: There are two varieties, the red and the white. The red manaca is the one used for medicinal purposes, the white has been imported in considerable quantities. It is distinguished by having a soft, white root, abundantly covered with small flakes of cork of a tissue paper thickness.

O. A. FARWELL.

MANGANESE DIOXIDE: Two shipments assayed only 70.7% and 76.8% of MnO₂.

H. ENGELHARDT.

MATICO: Has been substituted by the leaves of *Eupatorium glutinosum* growing in the same regions as genuine matico, *Piper angustifolium*. Careful comparison shows certain differences.

Genuine.

Substitute.

Leaves alternate.

Leaves opposite.

Margin finely crenulate.

Margin serrate.

Base unequal, oblique, subcordate.

Base cordate.

Venation palmate-pinnate prominent below.

Venation pinnate.

Upper surface scarious and finely bullate.

Upper surface scarious and coarsely bullate.

Lower surface pubescent; simple hairs; glandular hairs absent.

Lower surface very woolly, due to numerous long, simple, much twisted hairs; numerous

Subsessile or short petiolate.

short glandular hairs.

Length 10 to 20 Cm.

Petiole 1 to 3 Cm. long.

Breadth 2 to 5 Cm.

Length 5 to 14 Cm.

Breadth 1 to 3 Cm.

U. S. DEPARTMENT OF AGRICULTURE.

MOUNTAIN SAGE: *Artemisia tridentata*, *A. Ludoviciana* and other species of *Artemisia* have been gathered in large quantities as substitutes. Mugwort, *Artemisia Mexicana* has been offered as a substitute.

O. A. FARWELL.

MYRRH: Alcoholic extractive 24.67%, 24.09%.

E. L. PATCH.

NEOSALVARSAN: Ampoules containing starch and salt have been sold for neosalvarsan 15,000 such ampoules were filled in Jersey City. They were put up in packages to imitate the German or English makes.

Apothecary.

NITROUS ETHER, SPIRIT: One hundred and twelve samples below standard.

MASSACHUSETTS STATE BOARD.

NUX VOMICA: Seven lots; total alkaloids, 2.61%, 2.678%, 2.975%, 3.19%, 3.16%, 2.5%, 2.49%.

E. L. PATCH.

OPIUM: Most of the opium received in this country appears to come from Persia. Ten shipments received were of good quality.

H. ENGELHARDT.

Powdered 11.7%, 10.94%.

E. L. PATCH.

PAPAIN: One part digests 13.6 fibrin in neutral solution; 24.1 in alkaline.

One part digests 13.6 fibrin in neutral solution; 24.4 in alkaline.

One part digests 12.0 fibrin in neutral solution; 20 in alkaline.

E. L. PATCH.

PARSLEY SEED: Of ten shipments one was rejected, yielding only 11% ether soluble resin.

H. ENGELHARDT.

PENNYROYAL: This product has been very carelessly collected and frequently contains very large amounts of sand, stems and other foreign material. Pennyroyal leaves should not contain more than 10% stems, more than 16% ash and not more than 6% of acid-insoluble ash (sand).

DEPARTMENT OF AGRICULTURE.

PEPSIN: Two shipments were deficient in proteolytic power.

H. ENGELHARDT.

PETROLEUM BENZIN: Very difficult to find a product meeting the U. S. P. requirements. Much sold under this name has a specific gravity of 0.7400 or more, while the official range is 0.638 to 0.660. The usual product has considerable foreign odor. The Standard Oil Company formerly marketed a "Gas Machine Gasoline" having a sp. gr. of about 0.6508 at 25° C., but they have discontinued it.

E. L. PATCH.

PETROLATUM OILS: White mineral oils of exceptional quality of American source can now be readily obtained. Occasionally they are defective. Two lots would not meet the sulphuric acid test.

E. L. PATCH.

PHENOL: This product is made almost exclusively in this country at the present time and is generally of good quality; however, we received a few shipments which possessed a nauseating odor resembling sulphuretted compounds.

H. ENGELHARDT.

POTASSIUM PERMANGANATE: One shipment contained manganese oxide and another assayed only 86% of absolute salt.

H. ENGELHARDT.

PRICKLY ASH BARK: A common substitute is prickly elder bark (*Aralia spinosa*). It is readily distinguished by taste as it does not produce the acrid or tingling sensation developed by the genuine xanthoxylum.

O. A. FARWELL.

QUASSIA: Extractive 3.3%, 5%, 4%. Ash 2.8%, 3.4%, 3%.

E. L. PATCH.

QUININE SULPHATE: One lot contained a decided trace of other cinchona alkaloids.

E. L. PATCH.

RENNET: Much difficulty was experienced with this product. In regard to its curdling power it would be advisable to give more detailed directions for the assay process, especially in regard to the absence of preservatives in the milk used for testing rennet.

H. ENGELHARDT.

SARSAPARILLA, MEXICAN: Supplies have been more or less curtailed with a consequent rise in price. Many substitutes have been brought forward, some of which are the roots of unofficial species of Smilax. One substitute is the rhizome of some fern. Externally it is black, dorsiventral and when broken crosswise shows a structure similar to that of *Ilex aquifolium*. This is not permitted to enter the country under the name of Sarsaparilla, but considerable quantities have been admitted under the name of "Black Sarsa."

O. A. FARWELL.

SOFT SOAP: Much complaint is entered by physicians as to the color, odor, etc., of the U. S. P. IX product made from cottonseed oil and some insist on the U. S. P. 1900 made from linseed oil.

Two lots gave 0.6% of free oleic acid. Residue 3.5% and 2.9% (U. S. P. 3%).

E. L. PATCH.

SOAP LINIMENT, U. S. P.: Refractive index 1.3750; alcohol 60%. Diluted with water, salted and ether washed 100 Cc. gave 5.3% residue. Evaporation of original 5.4%.

Market sample: Refractive index 1.3702; alcohol 66%. Ether washing 2.7%. Evaporation of original 4.25%. (Half quantity of oils about 80% of soap.)

U. S. P., refractive index at 20°, 1.3771. Evaporation 5.73%.

Sample, refractive index 20°, 1.3770. Evaporation 5.5%.

E. L. PATCH.

SODIUM BENZOATE: No. 1, assayed 99.38%. No. 2, 99.38 sodium benzoate, 0.35 sodium chloride.

E. L. PATCH.

SODIUM CHLORIDE: Worcester salt, moisture 0.5%, NaCl 99.67% (includes CaCl₂).

Prominent name, U. S. P., moisture, NaCl 99% (includes CaCl₂).

Prominent name, U. S. P., moisture, NaCl 97%, contained Ca, Mg and sulphate.

Prominent name, U. S. P., moisture, NaCl 99.2% contained Ca, Mg and sulphate.

Prominent name, highest purity, 99.86%, 99.57%, 99.86%, 99.28%.

E. L. PATCH.

SPIKENARD: Extractive 21%, 7% ash, 24% extractive, 15% ash.

E. L. PATCH.

STRAMONIUM LEAVES: This drug is largely cultivated in this country and out of ten shipments we were compelled to reject only one assaying 0.22% of total mydriatic alkaloids.

H. ENGELHARDT.

Leaves of various unofficial species of datura have been gathered and offered as stramonium. Probably most of the spurious drug comes from *D. meteloides* and can readily be differentiated by the pubescent character of the leaves.

O. A. FARWELL.

0.24% alkaloids, 10.32%.

E. L. PATCH.

The leaves of *Nanthium strumarium* L. have been substituted for true stramonium. They do not contain the characteristic alkaloids of the genuine.

DEPARTMENT OF AGRICULTURE

STYRAX: Soluble in alcohol 82%, 17% volatile matter, 7% residue. Smelled like shoemaker's wax.

E. L. PATCH.

TANSY: The leaf apparently has disappeared, or soon will, from the market. Its place has been taken by the herb, usually cut, which contains an excessive percentage of heavy inert stems.

O. A. FARWELL.

UNICORN ROOT, ALETRIS: Extractive 16.7%. Ash 7.3%. Extractive 12.2%. Ash 9.4%.

E. L. PATCH.

Excessive amounts of total ash and acid-insoluble ash have been found in lots of Aletris. In a few instances the limit of 16% given in the N. F. was exceeded. If properly collected total ash should not exceed 10% and acid-insoluble ash 5%. One lot contained 3% true Aletris and 97% false Unicorn, *Chamaelirium luteum*.

DEPARTMENT OF AGRICULTURE.

VALERIAN: There has been gathered in Mexico and offered for sale as Valerian, a long spindle-shaped root that has the characteristic valerian odor. Needless to say it is not the official drug, which is a fibrous root.

O. A. FARWELL.

VIBURNUM: Nearly all samples of *Viburnum prunifolium*, black haw, have proved to be genuine, while most lots claiming to be *Viburnum opulus* have proved to be mountain maple bark, *Acer spicatum*. Mountain maple bark may be distinguished by its fracture, which is fibrous, while that of Cramp Bark is short and weak, since it has no bark fibers or the fibers, if present, are few and scattered. The barks may further be distinguished by the color which develops when a drop of 1% or 0.1% ferric chloride solution is placed on the inner surface of the bark. After several minutes a blue color develops in the case of mountain maple and a green color in the case of cramp bark, due to the tannin in the bark. If woody tissue is present it should be removed before making the test.

DEPARTMENT OF AGRICULTURE.

WATER PEPPER: This drug is derived from *Polygonum acre* and perhaps *P. hydropiper* the species with acid leaves. *P. Persicaria* and *P. hydropiperoides* are largely used as adulterants and substitutes.

O. A. FARWELL.

WILD CHERRY: The barks of the Rocky Mountain species of cherries have been gathered and offered as wild cherry. The bark is thicker and distinguished by the narrow transverse ridges on the outer bark, in more or less scattered but concentric circles.

O. A. FARWELL.

Four grammes of good bark should yield over 2 minims or 0.124 mls of 2% hydrocyanic acid. Four lots were below this standard. 1.04 minims, 1.37, 0.847 and 1.44.

E. L. PATCH.

WINES: A carload of Sherry Wine was rejected on account of having a cloudy appearance and having an acid reaction due to after-fermentation.

H. ENGELHARDT.

Sherry, alcohol 19.56% volume, 19.16%, 18.16%.

Port, 20%, 19.24% (5.5 Gm. residue from 100 mls) 19.4%.

20.9%, 18.34%.

Malaga, 18.84% alcohol.

E. L. PATCH.

XANTHORRHIZA: The root of this plant is gathered in large quantities and offered sometimes as goldenseal, sometimes as berberis.

O. A. FARWELL.

YELLOW DOCK: Canaigre and the roots of various species of *Rumex* have been offered for the official *Rumex crispus*.

O. A. FARWELL.

YERBA SANTA: Much is offered containing 15 to 20% of large stems, instead of the 5% limit of stem, and inert old or improperly dried leaves.

E. L. PATCH.

ZINC OXIDE: Many lots contain excess of lead.

DEPARTMENT OF AGRICULTURE.

99.27% ZnO, trace only of heavy metals, 99.68% ZnO, slight trace of heavy metals; 99.36% ZnO, 0.1% ZnCl₂, slight trace of iron, no lead; 99.36% ZnO, 0.2% ZnCl₂, no other heavy metals.

E. L. PATCH.

EDGAR L. PATCH,

H. ENGELHARDT,

O. A. FARWELL,

Committee.

COUNCIL BUSINESS

COUNCIL MEETINGS.

THIRD SESSION OF THE COUNCIL, 1917-1918.

(Concluded from p. 831, September issue.)

The report of the Committee on Publication was presented as follows:

To the Members of the Council:

The Committee on Publication submits the following report:

Expenditures for the Journal.—The expenditures of the JOURNAL in 1917 for publication, etc., were \$6,282.61, which, with the editor's salary (\$3,500), totalled \$9,782.61, and the total cost of the JOURNAL for the previous year was \$9,123.07 (\$5,623.07 + \$3,500), an increase of \$659.54.

Receipts of the Journal.—The receipts of the JOURNAL in 1917 from advertisements, etc., were \$6,000.73 and for 1916 were \$5,478.21, an increase of \$522.52.

Net Cost of the Journal.—In 1917 the total cost of the JOURNAL (including salaries) was \$9,782.61, and the total receipts were \$6,000.73, making a net cost of \$3,781.88. In 1916 the net cost was \$3,644.86, or an increase in net cost for 1917 of \$137.02. In other words, there were in 1917 over 2,700 members in the Association and the *Journal for 1917 cost the Association practically, only \$1.40 per member per year.*

The credit for this achievement is due to Editor Eberle, who has worked most zealously, not only in keeping down the rising costs of publication and in getting and retaining advertisements—a most difficult task at this time, when there is so much business that no firm hardly wants to advertise—but also, in maintaining the high scientific character of the JOURNAL.

Printing of Journal for 1918.—The contract for printing the JOURNAL for 1918 was continued with the Eschenbach Printing Company, of Easton, Pa., on October 1, 1917, under the same exceedingly advantageous conditions as the contract of 1917 with the same company, and the service rendered has been entirely satisfactory.

Year Book for 1916 (Vol. 5).—The contract for printing the Year Book for 1916 was awarded to the Eschenbach Printing Company, of Easton, Pa., on October 1, 1917; the Eschenbach Printing Company generously consenting to print the 1916 Year Book under the same specifications, terms and conditions as the 1915 Year Book. The book was distributed in May 1918.

Reporter Army states that "the preparation of the Abstracts for the 1916 Year Book was made difficult by the absence of practically all journals from Germany, Austria and even from Switzerland. Abstracts from these sources were obtained from English, French and Dutch journals, and notably from 'Chemical Abstracts,' the editorial staff of which was able to secure sets of the 1916 journals from the Teuton nations." With these aids, the Year Book was as comprehensive as its predecessors.

The 1916 Year Book cost \$2,945.08, including expressage, which, with the salary of the Reporter on the Progress of Pharmacy (\$600), totalled \$3,545.08. In 1915 the Year Book cost \$2,912.51, including expressage, etc., which, with the salary of the Reporter on the Progress of Pharmacy (\$600), totalled \$3,512.51, an increased cost for the 1916 issue of \$32.57.

In other words, on the basis of 2,700 members, the *Year Book for 1916 cost the Association practically, only \$1.30 per member per year.*

The Year Book contains only about one-half as many reading pages as the JOURNAL, the increased relative cost being due to the fact that the Year Book does not carry advertisements.

The JOURNAL and the Year Book, therefore, *cost the Association, practically, but \$2.70 per member per year.*

The JOURNAL and the Year Book represent, next to the National Formulary, the most valuable assets of the Association, and it is important that they be kept so. At the present time the members of the Association are receiving very valuable services from the Editor of the JOURNAL, services which are worth more than we are paying him. We, therefore, recommend an increase in the annual salary of the Editor of \$250. (It should be more.) Our finances, we are assured, will permit the increase.

National Formulary, Fourth Edition.—25,000 copies of the N. F. IV have been printed and bound. Of these the stock remaining on hand on July 1, 1918, were 1,521 7/66 muslin, 588

Buckram and 167 Interleaved). In other words, practically, 23,500 have been sold since the first copy on July 25, 1916. The General Secretary will present in his annual report a statement as to the distribution of the book and the Treasurer in his report a statement as to the receipts and expenditures.

As nearly seven years have passed since the establishment of the monthly JOURNAL of the Association, a sufficient time has elapsed to pass judgment upon the wisdom of its issuance. As the result of its study of the situation, the Committee on Publication believes that the decision to publish the JOURNAL was one of the most progressive steps ever taken by the Association. The results obtained have been more than satisfactory. No apology is needed for the JOURNAL. It stands in the front rank of scientific periodicals and exercises a potent national influence in the important domain of pharmacy and collateral sciences. It has enabled the Association to keep in touch with its membership *each month*, and has accentuated, during the year, the attention, interest and work of the membership. It is in a class of its own, and is the competitor of no other pharmaceutical journal, but the friend of all. It furnishes to its readers nearly 100 pages of reading matter each month, an amount of space that no other pharmaceutical journal of the country could possibly give to the Association, no matter how friendly it might be.

The publication of the JOURNAL marks a great advance over the former Proceedings in the presentation of reports and papers read at the annual meetings, because these are received sooner by the members, relatively, than formerly, and being received monthly, are read through, which was not the case with the annual volumes of the Proceedings, regarded chiefly as a work of reference.

While praising the JOURNAL, the Year Book deserves no less praise. It is the equal if not, the superior, of any other annual report on the progress of pharmacy, and under the able management of its present Reporter on the Progress of Pharmacy, it is worthily maintaining the traditions of its predecessors.

In these two works, the JOURNAL and the Year Book, each in a class of its own—one for the publication of the detailed research work of the members of the Association and the other for the comprehensive review of *all* pharmaceutical literature and research—the Association is following the example and experience of other leading scientific bodies, such as the American Medical Association, the American Chemical Society, the Pharmaceutical Society of Great Britain, and the French Pharmaceutical Society, etc., and it is doing this at an exceedingly reasonable cost to the Association, as the figures previously given show.

In addition, the revision of the National Formulary of the American Pharmaceutical Association is largely based upon the research work of the members of this Association, and the recognition of the book as a legal standard for drugs has brought unusual and deserved prestige to the Association. It is, therefore, peculiarly fitting that, after a proper deduction for the overhead charges of the Association incurred on behalf of the National Formulary has been made, the balance should be kept as a Research Fund (as has been decided upon under Rule 14 of the General Rules of Finance), to be expended for encouraging investigation and research work upon any subject relating in any way to Pharmacy or to the collateral sciences, as may seem proper by the Council; promoting in this way the growth and development of the science and art of pharmacy for the ultimate good of all concerned.

J. W. ENGLAND, *Chairman*.

On motion of Jacob Diner, seconded by S. L. Hilton, the report was received and the recommendation of the Committee on Publication that the salary of the Editor of the JOURNAL be increased \$250 per annum, was referred to the Committee on Finance to consider and report upon later to the Council.

Adjourned until Wednesday, August 14, at 7 P.M.

J. W. ENGLAND, *Secretary*.

FOURTH SESSION OF THE COUNCIL, 1917-1918.

The fourth session of the Council for 1917-18 was held at the Congress Hotel, Chicago, on Wednesday, August 14, 1918, at 7.30 P.M., Chairman L. C. Hopp presiding.

Present: Messrs. H. V. Army, W. B. Day, Jacob Diner, E. G. Eberle, Frank Eldred, E. F. Kelly, J. W. England, L. C. Hopp, J. Hostmann, J. A. Koch, L. A. Seltzer, L. E. Sayre, C. M. Snow, Dr. H. M. Whelpley, and F. J. Wulling.

On motion, the reading of the minutes of the previous session was dispensed with.

Applications for membership from 396 to 402, inclusive, were presented and favorably acted upon. The list was:

- No. 396. Herschel Brian McWilliams, 1100 Grand Ave., Washington, Ind., rec. by C. C. Glover and A. F. Schlichting.
 No. 397. Harry Warren Koch, 3rd Ave. & 74th Sts., Brooklyn, N. Y., rec. by Hugo H. Schaefer and J. Rehfuß.
 No. 398. Harry A. White, Wyoming, Ill., rec. by Wm. B. Day and C. M. Snow.
 No. 399. Joseph E. Dubsky, 1901 West 51st St., Chicago, Ill., rec. by T. H. Potts and Frank Dub-sky.
 No. 400. John R. Elson, 1025 Charles St., Wellsburg, W. Va., rec. by W. P. Porterfield and Wm. B. Day.
 No. 401. Miss Sylvia Ginsburg, 908 S. Ashland St., Chicago, Ill., rec. by Amanda Druehl and Jean Gordon.
 No. 402. Charles T. Root, 806 Lennox Apts., Detroit, Mich., rec. by Leonard A. Belges and A. A. Wheeler.

The Report of the Research Committee was presented, as follows:

REPORT OF THE RESEARCH COMMITTEE, A. PH. A

To the Members of the Council:

In the early part of 1918, the Council approved of the selection of a committee on research consisting of H. V. Arny, G. M. Beringer, J. A. Koch, Henry Kraemer, E. Kremers, C. H. LaWall, F. B. Power, W. L. Seoville, A. B. Stevens and H. M. Whelpley.

Since its appointment, the committee has discussed the problems before it by means of seven bulletins and the question of the wisest methods of administering the American Pharmaceutical Research Fund was discussed from all angles.

The result of our correspondence brought your committee to the view that it would be unwise to formulate, at this early date in the history of the fund, any hard and fast rules concerning minutiae and as a result the following resolutions covering the work that was entrusted to your committee were passed by substantial majorities.

1. *Resolved*, That any award that shall be made shall be assigned for the purpose of promoting those particular topics which in the opinion of the Committee are most worthy of immediate investigation and are most likely to yield practical results.

2. *Resolved*, That the topics for investigation are to be assigned in relation to their importance and to the extent that money is available for their prosecution.

3. *Resolved*, That any particular award shall be made to an individual who shall be adjudged competent to carry on the investigation and who shall be considered responsible for the results or the use of the award.

4. *Resolved*, That the whole sum available in any single year may be awarded to one investigator, or it may be divided between two or more investigators, as may be deemed wise.

5. *Resolved*, That investigators may be selected by the Committee, or may be accepted on application when in the judgment of the Committee such investigators are competent and deserving.

6. *Resolved*, That awards shall be made by the Council upon advice and recommendation of the Research Committee.

7. *Resolved*, That a vote of at least 70 percent of the Committee shall be necessary to carry motions on rules dealing with problems of financial character.

Your Committee desires to call attention to the fact that it is a temporary body, which will go out of existence after this report is received by the Association. That such a Committee should be a permanent one there is no question, and your present Committee therefore recommends that the following amendments be made to the by-laws, creating a standing committee on Research:

That Article I of Chapter X of the By-laws of the Association be amended by adding "a Committee on Pharmaceutical Research," the article to read: "There shall be appointed or elected standing committees as follows: A Committee on United States Pharmacopocia, a Committee on Transportation, a Committee on Resolutions, and a Committee on Pharmaceutical Research, each to consist of ten members," etc.

Also that Article XI be added, to read as follows:

"The Committee on Pharmaceutical Research shall be elected by the Council, two members to serve for a term of five years, two for a term of four years, two for a term of three years, two for a term of two years, and two for a term of one year, and after the expiration of the one-year term, two members shall be elected annually for a term of five years. The Committee on Pharmaceutical Research shall endeavor to promote research along pharmaceutical lines, and shall advise the Council as to the use of the research funds of the Association."

H. V. ARNY, *Chairman*.

On motion of F. J. Wulling, seconded by Jacob Diner, the report was adopted and its recommendation approved.

The following amendment to the By-laws, offered at the first general session of the Association and referred to the Council, was read:

Amend Chapter VIII, Article III, by adding:

"and if the number of members of the American Pharmaceutical Association who are members in good standing of any State Association shall equal twenty-five per centum of the actual number of members of such a State Association, then the reduction shall be five dollars, making the net amount to be paid three dollars."

Making the amended article read:

"Every member shall pay *in advance* to the Treasurer the sum of four dollars as annual dues, and by neglecting to pay said contribution for six successive months may be dropped from the roll of members. If the annual dues (four dollars) and the annual subscription to the JOURNAL (four dollars) be paid at one and the same time, a reduction of three dollars shall be allowed, and if the number of members of the American Pharmaceutical Association who are members in good standing of any State Association shall equal twenty-five per centum of the actual number of members of such a State Association, then the reduction shall be five dollars, making the net amount to be paid three dollars."

H. P. Hynson, present by invitation, explained the intent of the proposed amendment and an extended discussion upon the subject was had.

On motion of H. V. Arny, seconded by Dr. H. M. Whelpley, it was decided that the Council recommend to the House of Delegates a discussion of the subject of "combination-dues" of the American Pharmaceutical Association and the State Associations on the basis of 100 per cent membership of the State Associations, the latter collecting the combined dues and remitting to the American Pharmaceutical Association its portion of the dues.

Treasurer Whelpley made a verbal statement on the payments of dues by members and on the Joseph P. Remington Medal Fund, established by the New York Branch and approved by the Council. It amounted to date to \$1,000 invested in Liberty Bonds.

On motion of J. W. England, seconded by E. G. Eberle, a vote of thanks was directed to be given to the New York Branch for establishing the Fund and the Treasurer of the Association was authorized to keep the Fund as a separate fund and to change the bonds of the earlier issues of the Liberty Bonds into those of the Third Liberty Loan registered and of large denominations.

Adjourned until Thursday, August 15, 1918, at 5 P.M.

J. W. ENGLAND, *Secretary*.

FIFTH SESSION OF THE COUNCIL, 1917-1918.

The fifth session of the Council for 1917-18 was held at the Congress Hotel, Chicago, on Thursday, August 15, 1918, at 5.15 P.M., Vice-Chairman S. L. Hilton being called to the chair in the temporary absence of the Chairman.

Present: Messrs. H. V. Arny, W. B. Day, Jacob Diner, Dr. A. R. L. Dohme, C. A. Dye, E. G. Eberle, J. W. England, J. G. Godding, S. L. Hilton, L. E. Sayre, Clyde M. Snow, Dr. H. M. Whelpley, F. J. Wulling, E. F. Kelly, L. A. Seltzer, F. R. Eldred and Dr. F. E. Stewart.

The minutes of the previous session of the Council were read and on motion approved. Chairman Hopp assumed the chair.

Applications for membership from Nos. 403 to 407, inclusive, were presented and favorably acted upon. The list was:

No. 403. Isidore Edward Chez, 3701 W 12th St., Chicago, Ill., rec. by Wm. Gray and S. L. Antonow.

- No. 404. Edgar Yager Hudson, Shenandoah, Va., rec. by W. F. Rudd and Wm. B. Day.
 No. 405. Walter L. Lyle, Bedford City, Va., rec. by W. F. Rudd and Wm. B. Day.
 No. 406. Wm. O'Neill, 337 W. Madison St., Chicago, Ill., rec. by Wm. B. Day and Ray Whidden.
 No. 407. Robert Templeton Echols, Pullman, Ill., rec. by E. G. Eberle and E. N. Gathercoal.

The Commercial Section passed the following motion at its session on August 15 and referred the same to the Council:

"That the Council of the American Pharmaceutical Association be requested to sanction the appointment of a committee of five to be known as the Committee on Conservation; this committee to consider suggestions regarding changes of formulas to aid in the conservation of glycerin and other products." (A paper read by Hugo Schaefer, of New York, entitled "The Conservation of Crude Drugs," is requested to be referred to this committee if appointed.)

The requests of the Commercial Section were agreed to and the Chairman of the Council was directed to appoint the Committee.

The following recommendations contained in address of Robert P. Fischelis, Chairman of the Commercial Section, were approved by the Section and referred to the Council.

"(1) That the American Pharmaceutical Association take the initiative or, at least an active part, in any movement designed to protect pharmaceutical interests after the war.

(2) In accordance with the rules of the A. Ph. A., the Section on Commercial Interests shall each year propose a topic for discussion by State Pharmaceutical Associations and report on the results the following year. The topic suggested for the ensuing year is "Pharmacy and Pharmacists after the War," and this may include considerations of such question as the help problem, the problem of correct prices, on attitude toward imported merchandise, and similar problems"

On motion of E. G. Eberle, seconded by Wm. B. Day, the action on above request was postponed until a subsequent meeting.

On motion of J. W. England seconded by W. B. Day, Oliver Franklin Fuller, of Chicago, was elected Honorary President of the American Pharmaceutical Association for 1918-19.

E. G. Eberle presented his report as Editor, as follows:

REPORT OF THE EDITOR AND ADVERTISING MANAGER OF THE JOURNAL OF THE A. PH. A.

PHILADELPHIA, August 1, 1918.

To the Council and Members of the American Pharmaceutical Association:

In submitting my report as editor and advertising manager for the year of 1917, I can present nothing new or very different from the report of the Publication Committee.

The total expenses for the year 1917 amounted to \$6,282.61, while for 1916 they were \$5,623.07, a difference of \$659.54, due to the advanced cost of everything that goes into the production of the JOURNAL. There is also an increased cost of \$23.02 for postage, due to the fact that we must mail and remail copy, proof, and pay postage on reprints. The advanced cost of publication accounts for \$470.08 of the \$659.54; the other cost, aside from postage, was for reprints, as the clerical expenses were practically the same.

Our receipts were \$6,000.73 against \$3,478.21 of 1916; part of this increase was due, however, to receipts from reprints. The JOURNAL cost us \$137.02 more than the year previous, or about \$12.00 per issue more.

The year of 1917 was a favorable one for advertising; we had a year's contract for a page from the General Sales Agents of the National Formulary, valued at \$300.00, and advertising on account of the National Dispensatory and other text and reference books.

It should be understood by the members that in these figures no credit is given to the JOURNAL for subscriptions through membership, and we of course persuade most prospective subscribers to become members of the Association. If the JOURNAL were credited with, say, \$2.00 for each subscribing member, then the JOURNAL would pay its own way, including the editor's salary, and pay some money back into the treasury. But this is only for those who look upon the JOURNAL as an expense. All of our work is for the Association, for pharmacy, for pharmacists, for service.

Our receipts from advertising in 1917 were \$5,529.84, exceeding those of the previous year by \$304.27. We need more advertising patrons, we should have them, and can have them, if some of our members will use their influence in that direction.

I have here itemized and scheduled lists of receipts and expenses. Each month every member of the Publication Committee receives a monthly statement. Early this year these statements were audited with those of the treasurer's books and found correct. Bills from the publisher go to the secretary, other expenses are paid by me, and on the signed vouchers I receive my money. All checks received by me are made payable to the Association or the Treasurer.

The JOURNAL has made some progress, and we have reason to be pleased. With this as an analysis I desire to add a few statements and a request for continued coöperation, and also to extend thanks to all the pharmaceutical journals for their coöperation, which we have endeavored to reciprocate. The JOURNAL is in no sense a competitor but strictly a coöperator. Especially commendable was the publicity given for this meeting and doubtless the attendance was influenced thereby and the splendid work of the local committees.

That the JOURNAL is being more and more appreciated is evidenced by those favoring the publication with contributions which they desire to have printed in a Journal of this kind. It occupies as to pharmacy the same place that the Journal of the American Medical Association does to medicine, and that of the American Chemical Society to chemistry, etc. The thing is to provide for greater opportunities—all work together. It is gratifying to report that the attachment for the JOURNAL is growing; never a month passes without letters of favorable comment and encouragement. A very few of the other kind of communications have been received, just one the other day, but it came in the same mail with another from one who, because of the JOURNAL, applied for membership in the Association, which more than offset the discouraging letter. Every member of the Membership Committee uses the JOURNAL and Year Book as a means of getting members, and we all know they are sincere in their expressions, and personally I desire to thank every one of them. It is true there is a percentage of floating membership, but when the 26 deaths of this year represent 574 years of membership, or 22 years average, the former is not so large as some would have us believe.

It is also true that all the papers read before the Association cannot be printed at one time; if they were, many would go unread. But the JOURNAL needs no apology. It needs that, as in a business, we work harmoniously and enthusiastically for it, and it is a great satisfaction that with few exceptions this is the case.

Contrary to a more general view, it has been said that the JOURNAL has little real value for the advertiser. The JOURNAL has advertising value; it has the pulling power of our membership, of pharmacists who are influential in shaping American pharmacy. In some degree it may be an expression of altruism because the advertisers are imbued with the spirit, and I praise them for it, but in the final analysis the advertisers are given full value—exceptional value. So I repeat the JOURNAL has advertising value and our confidence and sincerity are potential in its establishment; the statement is entitled to our unqualified endorsement.

The members can encourage advertisers; the membership comprises members of influence who value the patronage given the JOURNAL. It is for them to tell the manufacturers so; we are promoting the science and volume of their business; we are co-laborers. It is in the advancement of pharmacy, of the drug business, that we are all interested. Let us be loyal. By devotion to the cause we give a lift; by promoting the possibilities of the work of our Association, the Year Book, the National Formulary, the JOURNAL and all of the other endeavors, we improve the service of pharmacy. Let us convey assurance that our Association and every one of its undertakings is worthy of our enterprise, our support; let us say so and act so, without equivocation or mental reservation.

I desire to express my sincere thanks and appreciation for your support, for your continued confidence, and hope that my endeavor and work meet your approbation.

Respectfully submitted,

E. G. EBERLE,

Editor and Advertising Manager.

On motion of W. B. Day, seconded by S. L. Hilton, the report was approved.

Adjourned until Friday, August 16, 1918, at 11 A.M.

J. W. ENGLAND, *Secretary.*

SIXTH SESSION OF THE COUNCIL, 1917-1918.

The sixth session of the Council for 1917-18 was held at the Congress Hotel, Chicago, on Friday, August 16, 1918, at 11 A.M., Chairman Hopp presiding.

Present: Messrs. H. V. Army, W. B. Day, Jacob Diner, Dr. A. R. L. Dohme, Clair A. Dye, E. G. Eberle, F. R. Eldred, E. F. Kelly, J. W. England, R. P. Fischelis, J. G. Godding, S. L. Hilton, L. C. Hopp, C. B. Jordan, J. A. Koch, L. E. Sayre, L. A. Seltzer, Dr. F. E. Stewart, Dr. H. M. Whelpley and F. J. Wulling.

On motion, the reading of the minutes of the previous meeting was dispensed with.

The following applications for membership were received and favorably acted upon:

No. 408. Edward Edwin Swanson, Y. M. C. A., Indianapolis, Ind., rec. by Charles R. Eckler and E. G. Eberle.

No. 409. Clifford Florian Taplin, Milroy, Minn., rec. by E. O. Kagy and E. G. Eberle.

The report of the Committee on Standards was presented as follows

REPORT OF THE COMMITTEE ON STANDARDS.

To the Council of the American Pharmaceutical Association:

Your Committee desires to report that owing to the present conditions due to the War, work on the formulation of standards has been much impeded. This has been due not only to the difficulty of obtaining samples of products in sufficient number to be fairly representative, but mainly to the fact that the time of the different members of the committee is so taken up with important matters connected with the War that it is practically impossible to secure assistance. The committee has, however, tentatively adopted standards for three products, namely:

| | |
|-------------------------------|-------------------|
| Potassium Guaiacol Sulphonate | Strontium Lactate |
| Quinine Hydrochlorosulphate | |

and has prepared and under consideration at this time monographs for fourteen other drugs and chemicals, namely:

| | |
|--------------------------|-----------------|
| Acetylsalicylic Acid | Franciscea |
| Calcium Phenolsulphonate | Malvae Flores |
| Lithium Benzoate | Marrubium |
| Zinc Stearate | Piscidia |
| Quinine Phosphate | Pyrethri Flores |
| Ceanothus | Sandaraca |
| Fabiana | Tonga |

The committee would therefore report progress.

(To be continued)

J. A. Koch, *Chairman.*

SURGEON GENERAL CONTRADICTS RECENT STATEMENT IN CONGRESS RELATIVE TO NUMBER OF DRUG ADDICTS.

The Surgeon General of the Army on October 12, authorized a denial of a report that 200,000 men called in the first draft were drug addicts. The report was based on a speech made in the House by Representative Rainey, of Ohio.

The Representative was chairman of a committee appointed by Secretary of the Treasury McAdoo to investigate the use of narcotics in the army. The inquiry has been on for months, and the Treasury Department is about ready to make public the results. The Surgeon General said:

"The records of the Surgeon General's office show that of a total of 990,592 men examined in the draft up to December 31, 1917, a total of 403 were rejected for drug addiction. To these men may be added seventy-six men discharged for drug addiction after induction and enlistment in the service. From the figures given it may be said that there is no evidence to show that there is an excessive use of drugs by enlisted men and officers of the army."

MINUTES OF A SPECIAL MEETING OF THE NATIONAL DRUG
TRADE CONFERENCE HELD AT THE SOUTHERN
HOTEL, BALTIMORE, MD., ON THE 25TH
DAY OF SEPTEMBER 1918.

Meeting called to order by President James H. Beal at 10.20 o'clock A.M.

The notice of the meeting issued September 11, 1918, was read and President Beal added the explanation that the meeting had been ordered by the Executive Committee at a meeting held August 13, 1918, for a purpose that would appear from the report of the Committee. (See report following.)

The roll was called and showed the following delegates and alternates present:

Representing The American Pharmaceutical Association: John C. Wallace, Samuel L. Hilton and James H. Beal, delegates.

Representing the National Wholesale Druggists' Association: Frank E. Holliday, alternate for Charles A. West; George W. Lattimer, delegate; (C. Mahlon Kline, absent).

Representing the National Association of Retail Druggists: Samuel C. Henry, James F. Finneran and Eugene C. Brokmeyer, delegates.

Representing the American Association of Pharmaceutical Chemists: George C. Hall, B. L. Maltbie, delegates, and Harry Noonan, alternate for Dr. W. C. Abbott.

Representing the American Drug Manufacturers' Association: Dr. A. R. L. Dohme and Charles M. Woodruff, delegates, and R. C. Stofer, also delegate appointed in the place of Adolph G. Rosengarten, resigned.

Representing the Proprietary Association of America: Philip J. Heusler and Harry B. Thompson, delegates, and Frank A. Blair, alternate for Fred. K. Fernald.

The minutes of the last meeting of the Conference as printed and distributed were then ordered approved without reading.

REFERENDUMS.

The Secretary then announced the adoption of the following referendums without a dissenting vote:

1. To appoint the following committees:

A committee on pharmaceutical service in the army and navy.

A committee on national and state legislation regarding alcohol in pharmaceutical products.

A committee on national and state formula and label legislation.

A committee on national and state anti-narcotic legislation, and to confer power on the President of the Conference to appoint alternate delegates to membership on standing and special committees.

2. WHEREAS, Present transportation conditions make it more necessary than ever that the drug trade have the fullest facilities of the mails, and especially the parcel post, and

WHEREAS, The bill to that end introduced in the last Congress known as the Kern-Doremus Bill received the endorsement of all the association members of the National Drug Trade Conference, therefore be it

Resolved, That the Executive Committee of this Conference be and is hereby instructed to effect the introduction of a similar bill in the present Congress and to promote its passage by every lawful means possible; and be it further

Resolved, That to this end the Executive Committee be authorized to expend a sum not exceeding \$200.00 in printing and circulating among members of

Congress, and the medical and pharmaceutical press, proper representations respecting the urgency and justice of such measure.

3. *Resolved*, That this Conference, representing all the pharmaceutical interests of the country, hereby respectfully protests against any increase in the tax upon industrial alcohol—otherwise called non-beverage alcohol—as an unnecessary and unjust burden upon an industry which has been classed as essential to the progress of the war and the health of both the military and civic population; and this Conference further represents and protests that any marked increase in such tax, because of its prohibitive tendency, is likely to defeat the very object of the law and effect a reduction of revenue from this source rather than an increase.

COMMITTEE APPOINTMENTS.

President Beal then confirmed the appointments noticed in Bulletin No. 4, which were as follows:

• Committee on Pharmaceutical Corps: Samuel C. Henry, *Chairman*; Chas. J. Lynn and S. L. Hilton.

Committee on Alcohol Legislation: Charles M. Woodruff, *Chairman*; Charles A. West and James F. Finnerman.

Committee on Anti-narcotic Legislation: John C. Wallace, *Chairman*; Fred K. Fernald and Eugene C. Brokmeyer.

Committee on Formulas and Labels: Harry B. Thompson, *Chairman*; C. Mahlon Kline and Charles M. Woodruff.

The following report of the Executive Committee was read and ordered received:

REPORT OF THE EXECUTIVE COMMITTEE.

Minutes of a meeting of the Executive Committee of the National Drug Trade Conference held in pursuance of a call of the President on the Municipal Pier in the City of Chicago at two o'clock P.M., August 13, 1918.

The meeting called to order by the President. Present: President James H. Beal, Secretary Charles M. Woodruff, Samuel C. Henry representing James F. Finneran, Dr. Burdick representing Dr. Wallace C. Abbott, Mr. George W. Lattimer, Dr. A. R. L. Dohme and Mr. Fred K. Fernald.

Dr. Dohme moved that the President call a meeting of the Conference at Washington or Baltimore at the earliest possible date in the interest of the creation of a Pharmaceutical Corps in the United States Army, the Conference to proceed in a body to present the matter to the proper authorities in Washington.

The motion was seconded by Mr. Henry, discussed, put to vote and carried.

The Secretary moved that the President appoint a committee of three to arrange for a meeting with the proper authorities and to formulate facts and arguments on the matter of a Pharmaceutical Corps in the United States Army for the consideration of the Conference.

The motion was seconded, put to vote and carried.

The President appointed as such committee: Dr. A. R. L. Dohme, Mr. Samuel C. Henry and Mr. Charles M. Woodruff.

Mr. George W. Lattimer moved that the committee just appointed suggest the date of the Conference meeting. Seconded and carried.

The Secretary then announced that the Conference had adopted the referendum submitted in Bulletin No. 6 and moved that the President appoint a committee of three to confer with the Postmaster General to see if he would not agree upon some measure to relieve the drug trade of the present inconvenience and injustice arising from inability to mail small packages of medicines containing therapeutic doses of poisonous substances.

The motion was seconded, put to vote and carried. Charles M. Woodruff, W. L. Crouse and Samuel L. Hilton, were appointed members of the committee.

Mr. George W. Lattimer moved that a committee of three be appointed to consist of the President, Dr. A. R. L. Dohme and one to be appointed by the President, to consider ways and means of broadening the scope of the Conference.

The motion was seconded and carried, and Mr. Lattimer was appointed the third member of the committee.

The Executive Committee then adjourned to meet again at the call of the President.

JAMES H. BEAL, *President*,

CHARLES M. WOODRUFF, *Secretary*.

The Secretary-Treasurer then gave an informal report respecting the state of the funds of the Conference, details to be incorporated in his regular report to be presented at the coming regular meeting of the Conference.

| | |
|--------------------------------|----------|
| Balance last report..... | \$373.18 |
| Received from assessments..... | 300.00 |
| Total..... | 673.18 |
| Expenditures..... | 132.86 |
| Balance on hand..... | \$540.32 |

of which \$200.00 had been appropriated to forward proper efforts to secure executive or legislative relief respecting the mailing of medicinal preparations containing poisons in therapeutic doses.

The President then called for the report of the special committee appointed by the Executive Committee to arrange for a meeting with the Surgeon General of the Army and to formulate facts and arguments in favor of a Pharmacy Corps in the United States Army to present for the consideration of the Conference at a special meeting to be called by the President when such committee announced its readiness.

Dr. A. R. L. Dohme announced that he had arranged an appointment with Acting Surgeon General Richards for 11 o'clock Thursday, September 26, 1918, and that two members of the committee had prepared written statements covering their ideas of what the Conference should unanimously agree upon, and would present both, this being acceptable to Mr. Henry and himself. He then read his draft, and Mr. Woodruff, the other member of the committee, presented his draft.

Then followed considerable discussion, presentation of motions, etc., until it was finally voted that both drafts should be referred to a committee of five to include the original committee and President J. H. Beal and Mr. R. C. Stofer.

The matter of the amendments to the Harrison Act appearing in the War Revenue Bill (H. R. 12863) was brought up. Mr. Woodruff read a statement and petition he had prepared, moved that it be adopted as the sense of the Conference and copies sent to the members of the Finance Committee of the Senate, which motion was duly seconded.

Mr. Thompson read a presentation of the case he had prepared, whereupon Mr. Woodruff, with the consent of his second, amended his motion to include Mr. Thompson's paper, and to have 1000 copies printed, one copy to be sent to each member of the Senate and the others to be used now and in the future as occasion may warrant. The motion as so amended was carried unanimously and the special committee on narcotic legislation was instructed to look after the matter; also to arrange for a hearing before the Senate Finance Committee if possible. These papers having been printed as separate documents and duly distributed are not repeated in these minutes.

The Conference then took a recess until three o'clock.

AFTERNOON SESSION.

The Conference reconvened at three o'clock, P.M., all delegates being present.

The committee of five appointed at the forenoon session to harmonize the papers presented by the members of the special committee respecting a Pharmacy Corps in the Army, reported that they had agreed upon the following:

STATEMENT AND PETITION OF THE NATIONAL DRUG TRADE CONFERENCE
RESPECTING THE CREATION OF A PHARMACY CORPS IN THE
UNITED STATES ARMY.

To the HON. SURGEON GENERAL,
United States Army.

The following is respectfully submitted as the unanimous opinion of the delegates to the National Drug Trade Conference, a delegate body constituted and empowered according to the accompanying printed sheet, on the matter of the creation of a pharmacy corps in the United States Army.

The Conference recognizes the efficiency of the Medical Department of the Army as demonstrated in the present emergency. The United States has called into the service of the country a colossal army, such as our people have never before dreamed of, and the Medical Department of the Army has, with the self-sacrificing aid of the medical profession at large, met a call that might well have seemed preposterous, if coolly considered in a time of peace. Both in methods and care the world has never before experienced such thoroughness and effectiveness. The health of our forces at home and overseas has been conserved far beyond any expectancy based on past experience in our own land or others.

But the medical profession has not reached this praiseworthy result unaided. Pharmacy has done its share and should receive its recognition and just reward. If our field and base hospitals have been more abundantly and better equipped it is because of what pharmacy has done in the way of progress during the recent years. If medicine has wrought greater results during the present than in previous wars, it is very largely because pharmacy has furnished more effective material to work with. Our Army doctors to-day have serums, toxins, vaccines, antitoxins, those of former wars never heard of. Pharmacy has furnished products controlled by methods it has discovered since previous wars were waged. Pharmacy has provided better facilities and products for sanitation, for asepsis, for anesthesia, and for prophylactic and curative treatment than were known even to the Army physician in the Spanish-American conflict.

To-day the pharmacist is a man of skill, education and training; many are adept in chemical analysis and fully equipped for bacterial examinations. Like the physician, he has devoted time and money to qualify for the work of his vocation, which has now come to be recognized as quite as important, and certainly as exact a science as medicine itself and his services in the army are invaluable.

1. We believe the services of graduated skilled pharmacists should be made available to the men in our army at least to the same extent that they are made compulsory in civil life.

2. We believe this cannot be done to the best advantage to those serving, the service, or those served, without the establishment of a properly organized, officered and coördinated pharmaceutical service.

3. We believe that skilled pharmacists graduated from colleges recognized in the American Conference of Pharmaceutical Faculties, a national association of standing and repute among pharmacists and the public, are best able, under the general supervision of the Surgeon General, to organize and handle the service.

4. We believe that if the pharmaceutical service by which we mean the skillful compounding, examination as to quality and accuracy, keeping and storage, assembling, dispensing upon physician's prescription or order and if necessary, administering of all drugs and medicines supplied to the Army and taken by soldiers, were organized, executed and controlled by skilled pharmacists that that service would be greatly improved and that the chances for error and disaster following error would be materially lessened.

5. We believe that such a service can be best organized and perfected by the establishment of a pharmacy corps, analogous to the veterinary, dental and sanitary corps.

6. We hold that pharmacy should be recognized in our Army as it is in our civil life, where it is an essential feature, upon which the public health in no small degree depends; and because it was so recognized in our Revolutionary or Continental Army; and it is so recognized in the armies of both our allies and our enemies. The pharmacists of America are not recognized in the Army organization, notwithstanding their pharmacopoeia is made official by Federal and State action, and is regarded as the best in the world.

7. In substantiation of these, our averments and belief, we respectfully offer the following facts bearing upon the case in addition to those already in the possession of the Surgeon General as the result of the hearing held on March 19, 1918, before the committee on Military Affairs of the House of Representatives and to which we again respectfully invite his attention:

a. Most other nations have in their armies organized pharmaceutical corps and they would not have them if they were not convinced of their importance and desirability.

b. Our colleges of pharmacy offer courses of instruction that compare favorably with those of colleges of medicine and confer degrees upon those who successfully pass examinations in theory and practice of pharmacy; and such graduates compare favorably with the graduates of similar institutions where pharmacy is taught in all other countries and nations.

c. If in civil life the state and nation have seen fit to pass laws regulating pharmacy and pharmaceutical service as they have done for medicine and medical service, and if in civil life the men entering the service are entitled to receive this regulated and trained pharmaceutical service, no reason seems to exist why these same men should not be entitled to receive this same service as soldiers, notably when in the latter capacity their need for it is indisputably likely to be more urgent and more frequent.

d. Many prominent medical men of this country have expressed themselves as favorable to the establishment of such organized pharmaceutical service and as well their conviction that it would relieve the army medical service of much work which properly belongs to pharmacists.

e. Although ready manufactured medicines are necessarily largely used in the Army, still these medicines require the skill and knowledge of trained and experienced men to recognize them, identify them properly, keep and store them and examine them from time to time to know that they are of proper accuracy and strength.

It is therefore the unanimous opinion of the National Drug Trade Conference that pharmacy should receive due recognition in the United States Army that is now denied it; that pharmacists should be awarded suitable commissions with corresponding dignity and compensation, according to individual merit and services; that there should be a Pharmacy Corps as an integral part of the Medical Department, with well-defined functions, subordinate but not menial to the Medical Corps.

The Conference, however, will not assume to work out the plan of organization of such a corps, except in coöperation with those who have better knowledge of military affairs than the Conference professes to possess; but once the honorable Surgeon General announces his approval of the general proposition, this Conference, if requested so to do, will be glad to appoint a committee to work to the end we seek with any person or persons the Surgeon General may designate to represent him.

All of which is respectfully submitted,

JAMES H. BEAL,
R. C. STOFER,
A. R. L. DOHME,
SAMUEL C. HENRY,
CHARLES M. WOODRUFF,

Committee.

It was then voted that the report be adopted as the unanimous sense of the delegates to the National Drug Trade Conference on the matter of a Pharmacy Corps in the United States Army, and that the Committee be instructed to present it as such to the Acting Surgeon General of the Army at the interview to be had on the 26th of September 1918.

Mr. Thompson then broached the subject of the increasing difficulty experienced by manufacturers and dealers growing out of the great variation of the legal definitions and interpretations of the term "intoxicating beverages" under the prohibition laws of the various states, and the desirability of the Conference securing some understanding with the promoters of anti-

liquor laws as to a reasonable statutory definition that would not jeopardize those who necessarily handle alcoholic medicinal products, and that could be adopted by all the states.

The subject was discussed at great length by several delegates, and on motion made by Mr. Thompson, it was voted that the Committee on Alcohol take up the matter with the proper officers of the Anti-saloon League and see if a bill could not be drawn that would be agreeable to them and that would form the basis of a uniform bill upon the subject.

A discussion followed upon the features of the War Revenue Bill that were agreeable to the various interests represented in the Conference, but no formal action was taken.

At the suggestion of President Beal it was then voted to invite the National Association of Boards of Pharmacy, the American Conference of Pharmaceutical Faculties and the National Association of Food, Dairy and Drug Commissioners to become members of the Conference.

Mr. Samuel L. Hilton then informed the Conference of the dire straits certain colleges of pharmacy were in owing to war conditions and the failure of the War Department to provide for the training of pharmacists for army service as they had provided for other technical vocations. It was at first thought that the conference should take some action at this meeting; but finally considered that the American Conference of Pharmaceutical Faculties was more deeply interested in the matter, best qualified to pronounce upon it, and it was therefore voted that a committee of three be appointed to confer with the Executive Committee of the American Conference of Pharmaceutical Faculties, and after such conference to submit by referendum to the National Drug Trade Conference such preamble and resolutions as they desired the Conference to act upon.

The President appointed Mr. Samuel L. Hilton, Mr. John C. Wallace and Mr. Samuel C. Henry as such committee.

Mr. Samuel C. Henry then informed the Conference of certain action the National Association of Retail Druggists had taken respecting the request of the Public Health Service respecting the sale of remedies for venereal diseases. Mr. Samuel C. Hilton announced that the Council of the American Pharmaceutical Association had a similar request under consideration. It was considered that as the other associations would probably receive similar requests, and as no request had come direct to the Conference, no action on its part was called for.

It was then intimated that the Public Health Service was contemplating organizing a Division of Pharmacy, and the opinion was expressed that the Conference might do some constructive work in connection therewith. It was voted that a committee of three be appointed to investigate the subject and report to the Conference at its next meeting.

The President announced that the committee was an important one and he would take time to consider whom he would appoint.

There being no other business the Conference adjourned.

MEMORANDUM OF MEETING WITH SURGEON GENERAL *RE* PHARMACEUTICAL CORPS.

On Thursday, September 26, 1918, the Conference proceeded to Washington and interviewed Acting Surgeon General Richards upon the subject of a Pharmacy Corps in the Army. The members escorted into the presence of General Richards were President James H. Beal, Secretary Charles M. Woodruff, and Delegates Dr. A. R. L. Dohme, Samuel L. Hilton, Samuel C. Henry, John C. Wallace, James F. Finneran, Eugene C. Brokmeyer, George C. Hall, R. C. Stofer, Philip I. Heisler and Harry B. Thompson. Dr. A. R. L. Dohme, as chairman of the special committee, read the statement and petition adopted by the Conference and prefaced same by a few extemporaneous remarks; Dr. Beal followed with a few words introducing in turn Mr. Henry and Mr. Woodruff, and Mr. Brokmeyer concluded. The Acting Surgeon General and Col. Darnell, who was present, spoke very freely and frankly, expressing the determination of the Surgeon General's office not to create a Pharmacy Corps in the Army, giving their reasons in full detail. However, the delegates were all cordially received, and had nothing to complain of except that they did not get what they came for nor any encouragement that they ever would

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman*; G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio*.

Editorial Office: 253 Bourse Building, Philadelphia, Pa.

THE RELATION BETWEEN CHEMICAL CONSTITUTION AND PHYSIOLOGICAL ACTION.

A lecture on above subject by Dr. F. L. Pyman, delivered before the Chemical Society, was reported in *Nature* and is summarized in the *Scientific American Supplement* of April 27, 1918; from this the following is abstracted: Doctor Pyman stresses the importance of the study of the relation between chemical constitution and physiological action of drugs. The first step in chemical investigation is the isolation of the principle to which the activity of the drug is due and then follows the determination of its constitution and the synthesis of a number of substances related to the parent compound, and comparison of their physiological action.

A discussion of "physiological action" is difficult because it involves any action on the living organism. It is impossible, for instance, to compare the bactericidal action of phenol with the hypnotic effect of diethyl-barbituric acid, or with the anesthetic action of cocaine; widely different causes may account for the same superficial signs of physiological action. Examples of physiological action are not wanting. Compounds of similar constitution generally possess a characteristic group-smell, while each member may have a specific odor. Sense of taste also provides an occasional means of discrimination not only between side-chains of different length, but also in certain cases between stereoisomerides.

Stereochemical influences often exercise profound effects, particularly on nerve-endings. Thus *l*-hyoscyamine has about a hundred times the mydriatic action of *d*-hyoscyamine, and *l*-adrenine many times the pressor effect of the dextro-compound. Asymmetry of a nitrogen atom may also condition a difference, as in the case of the α - and β -methochlorides of *l*-canadine. The cause of this variation still remains in doubt.

The influence of physical properties, such as solubility in different media, may be of im-

portance, and it has been shown that for a particular series of aliphatic compounds their narcotic effect on tadpoles was proportional to the partition-coefficients of their solubilities in oil and water.

As an indication of the effect of chemical properties, it has been shown that while certain basic dyes stain the grey nerve substance, their sulphonic acids do not. This difference suggested that bases, liberated in the blood-stream by alkalis, are extracted by the nerve substance, while their sulphonic acids remain in solution as alkali salts.

In the case of alkaloids it is a general rule that the introduction of a free carboxyl group profoundly modifies the physiological action. Benzoyl ecgonine, of which cocaine is the methyl ester, has no local anesthetic action; while quinine, obtained from quinine by oxidation of the vinyl group, is non-toxic. Formation of quaternary salts has also a considerable effect. For instance, papaverine has a strychnine-like action which is missing in its methochloride, and re-appears in its reduction product laudanose.

In the many cases in which members of a group of compounds of similar constitution resemble one another in physiological action it is of interest to observe the effect of slight chemical alterations. The following four pieces of work were then outlined: (1) *Tropeines* (acyl derivatives of the amino-alcohol tropine); (2) *aminoalkyl esters* (formed by the esterification of an acid with an alcohol containing an amino group); (3) *adrenine and the amines* (adrenine is the active principle of the suprarenal gland); (4) *protozoacidal drugs*. The results of experiments that have been made on the relative toxicity to infusoria of a number of cinchona derivatives, with a view to their employment in the treatment in malaria indicate that ethylhydrocupreine was the most active, but they do not admit of any certain conclusions as to the relation between their chemical constitution and protozoacidal action.

Experiments have also been made on the relative toxicity of the ipecacuanha alkaloids

to amoebae, and they indicate that the full amoebicidal action characteristic of emetine is exhibited only when the nucleus is intact.

QUININE AND UREA HYDROCHLORIDE.

Research work relating to preparations for administration and application of quinine and urea hydrochloride is suggested. The suggestion supplements others that have been made in the JOURNAL on a number of occasions, that coöperative research should be inaugurated in schools of pharmacy and medicine. The interdependence of medicine and pharmacy should be more thoroughly realized and action accordingly will develop the efficiency of a service to which the public is entitled from these professions. The advancement of medicine depends on the progress of pharmacy and the latter is made possible by such co-operation. It seems to us that a hearty, intense "working-together" will not only redound to the advantage of both and for the benefit of those served, but that this is the only rational plan and presents a duty. There is so much said of pharmacy as a small part of the drug business, as insignificant in the Army Medical Department, when really the fault is not with pharmacists but because the services of pharmacy are not fully utilized. It is high time that selfish motives be put aside and altruism, which the professions claim to be possessed of, brought into evidence by action. We are pleased to note the following statement in an editorial of the *Missouri State Medical Journal* for July: " * * * However the cry for still greater efficiency in the Medical Department of the Army gives promise that ere long a corps of professionally trained pharmacists will be placed under the command of Surgeon General Gorgas." But this is digressing from the purpose of this writing.

Research in connection with quinine and urea hydrochloride is not more important than that of many other chemicals which require investigations in the pharmacy and in the clinical laboratories. Last fall several articles appeared in the *Journal of the A. M. A.*, one by Dr. Joseph F. Saphir, in the issue of December 22, 1917, and another by Dr. E. H. Terrell in that of November 3, 1917, dealing with the drug as an ideal local anesthetic for rectal operations. Prof. Roberts Bartholow employed the salt as a local anesthetic many years ago; reports thereon by

Dr. Solomon Solis Cohen appeared in the *Philadelphia Polyclinic* in 1884. The latter contributed an article on "How to Use Quinine and Urea Hydrochloride, Especially for Systemic Effect by Injection in Malaria and Pneumonia," to the *New York Medical Times*, March 1912.

Professor Cohen employs the salt in applications for tonsillitis, 1 : 10, or stronger solutions, and it was in correspondence with him relative to perfecting a prescription for such a gargle that our attention was again directed to this useful drug. Aside from the references already given those that follow may be helpful, as they include further citations:

1. Observations on the Hypodermic Use of Quinine and Urea Hydrochloride in the Diagnosis and Treatment of Acute and Chronic Malarial Infections. And on the Resemblance to the Sexual Cycle of the Hemamoeba Manifested by the Periods of Freedom from Paroxysms that Ordinarily Follow a Single Injection of about One Gramme of this Salt. Solomon Solis Cohen, M.D., *American Journal Medical Sciences*, September, 1908.

2. Personal Communication; also Toxic Amblyopias, Philadelphia, 1896, p. 193.

3. See also the author's articles in "*The Polyclinic*," Philadelphia, February 15, 1884, and January 15, 1886; and "*The Philadelphia Polyclinic*," March 15, 1893, and September 3, 1898.

4. Fedeli, Gregorio. "A Rare Case of Malaria" *Trans. Coll. Phys., Philada.*, 3d Series, Vol. XIV, 1892, p. 1.

5. Ulmer, D. H. D. (from Service of S. Solis Cohen). "On the Effect of Quinine and Urea Hydrochloride Upon a Case of Double Tertian Malarial Infection, Contracted in Panama." *New York Medical Journal*, October 1, 1910.

6. Bass, C. C. *American Journ. Trop. Dis.*, February 1914.

PHARMACISTS SHOULD HAVE THE CREDIT FOR PERFECTING FORMULA OF NEUTRALIZING OINTMENT.

Dr. H. V. Army, in a letter to the *American Druggist*, calls attention to an article in the daily press wherein credit is given to chemists for developing the formula for the neutralizing ointment for the poisonous effect of mustard gas. The chemical corps worked out the antidotes, but when the work reached the ointment stage they turned that over to the *pharmacists*. New York College of Pharmacy

"loaned" one of Doctor Army's staff to the Government, who solved that phase of the problem.

No desire is expressed to take away credit from the chemists, but the work of pharmacists is so seldom credited to them that it pleases us to quote Doctor Army, though unfortunately this will not receive the wide publicity given the article in the press.

THE LEAST THAT SOME OF US CAN DO.

Secretary H. M. Whelpley, of the Missouri Pharmaceutical Association, under above caption brings a message to pharmacists. He says that many pharmacists have gone in to participate in our country's cause, others will go, and most of them lose their identity as pharmacists, but we should not forget the fraternal spirit. Every member knows some one who has enlisted, cheery messages will do a great deal toward keeping them in touch with pharmacy. True, they are over there to battle for their country; still, they will return, and they should not have cause to say that the tie that binds snapped when they left their homes.

And this brings up the resolutions by Mr. Freericks, which contemplated that provision be made for the pharmacists after they return. The time to prepare is now, these soldiers are entitled to our consideration.

KEEP UP ADVERTISING—A MESSAGE TO THE MANUFACTURER.

If one looks over the British pharmaceutical journals one sees that there is just as much or more advertising being done by British manufacturers now as before the war. The large semi-annual numbers have not been issued, but aside from these there is now just as much advertising. The American manufacturers should take a lesson, many have kept up their publicity, but a like number have not.

Val Fisher, a London publisher, in an address in New York City recently, said:

"Some wonderful things have happened in advertising, through war conditions, and I want to touch on some of those things, that you may be prepared for the conditions that will probably arise as the war goes on. In the last four years the business men of Great Britain have learned more concerning the importance of building good-will through advertising than they did in forty years preceding the war.

"In considering business conditions in England you must bear in mind that one-half of

all the men in England between the ages of 18 and 51 are in military or naval service. That means one-third of our entire male population, from infants in the cradle to the extremely old.

"You must bear in mind that 5,000,000 British women who never worked before have voluntarily gone to work to fill the places of men at the front. Hundreds of our women are working in factories making TNT—a work that ruins the hair and turns the skin yellow—thus sacrificing their beauty for the rest of their lives for the sake of Britain and freedom. We have only one business in England and that is to win the war. We are all concentrated on that one thing, even to the boys and girls.

"You would think under such conditions, with as many men in active service, in proportion to population, as you would have if you had 18,000,000 men in uniform—you would think under such conditions that retail business would be bound to be bad. And yet business is wonderfully good. You American business men are now in much the same position as were the British business men at the end of their first year of war. You are wondering what will be the effect of increasing selective service—you are anticipating restrictions on your business—and I want to tell you some of our experiences so you can profit by them.

"The department stores of any country usually reflect the state of trade. The profits of the twelve leading department stores during the period of the war were as follows: Fiscal year 1914-15, profits \$4,950,000; 1915-16, \$4,250,000; 1916-17, \$5,575,000. In the Provinces the profits of the nine leading stores were: 1914-15, \$750,000; 1915-16, \$945,000; 1916-17, \$1,150,000.

"From the outbreak of the war British business men clearly recognized their duty to their country and its fighting men. It was essential that they should strain every nerve to keep the trade of the country as near normal as possible during the war, and it is just as essential that when peace comes they must be prepared to keep every factory working at full pressure and to find employment for every employable unit. It is only by such methods that Britain can pay for her share of the war.

"No nation stands to gain as much commercially from the war as does America. In Great Britain the per capita income is \$236, and the per capita debt \$589; in the United States your

per capita income is \$352, and your per capita debt is \$63.

"These are times of rapid and tremendous change. No man can rest on his laurels. Those who were leaders last year, those who are leaders now in their respective business lines, may be surpassed next year by far-seeing efficient and thoroughly prepared competitors who have laid their plans a long way in advance."

RANK FOR ARMY NURSES.

To make a force of nurses effective it must be organized under those having authority to command them. Privates in the medical corps, called orderlies, but with little professional training, must help the nurses in their duties. Tasks requiring physical strength and no skill must be done by them and the nurses must tell them how and when.

In an army rank counts much in enforcing orders and discipline, and organization is impossible without it. Therefore army-trained nurses should be given rank, non-commissioned and commissioned, as it is given in all other branches of the Army. The fact that nurses are women is no reason for withholding it. It is given in the British army and works well. Why not in ours? There are many uniformed men in the Army with commissions who will never be exposed to as much danger and who are no more necessary in the military establishment.

Why there should be opposition it is hard to say, unless it be the same narrow view held somewhere in the medical corps of the Army which resisted the employment of female trained nurses at all.—William Howard Taft, in the *Philadelphia Public Ledger*.

Ex-President Taft's plea for the nurses is unanswerable. The Army nurses should have rank to do their best work, as should pharmacists also. Why those in authority so persistently refuse to see the light can be explained only on the ground of wilful prejudice.

There is a point that should be emphasized, the present method of drug administration will produce a large number of dispensing doctors, after the war. It is just as well to realize this. Will it benefit or injure the medical practice? We are inclined to say that it will be hurtful to both pharmacy and medicine. It will not only produce office dispensers but apothecary-physicians. Neither class will help the progress of medicine and pharmacy. The prescribing and dispensing of medicines are different and

not interchangeable functions. Both medical men and pharmacists are concerned in the recognition of pharmacy as a profession. Is it because the former have received such splendid recognition that they are unmindful now of the conditions after the war?

THE NEW SURGEON GENERAL, U. S. ARMY.

Merritte W. Ireland, Chief Surgeon of the American Expeditionary Forces in France, succeeded William C. Gorgas as Surgeon-General of the U. S. Army October 4. The latter was retired for age, and appointed medical



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MERRITTE W. IRELAND.

representative of the United States in the Supreme War Council at Versailles. General Robert E. Noble succeeds Major General Ireland in France.

While we differ from Surgeon General Gorgas in the estimate of pharmacy, we recognize his ability and honesty, and his success as a sanitarian and also in the handling of his stu-

pendous task; he has gained the general respect and he holds the confidence of pharmacists, notwithstanding their differences of opinion. His accomplishments have benefitted humanity, the record has become part of history. May the years still spared to him be full of health as they will be of honor.

Whether Surgeon General Ireland will hold different views relative to pharmacy from his predecessor remains to be seen. He went to France with General Pershing and had the opportunity of becoming acquainted with the Departments of the French Army. He is largely responsible for the medical organization and hospital facilities of the American Expeditionary Forces. Before the war he was assistant to preceding Surgeon Generals and is therefore well acquainted with the office he has assumed. The knowledge of conditions in France is most valuable. The Medical Corps has thus far not followed the practice of other branches of the Service in sending back regularly officers who have served in France so that they might instruct those on this side of the water and give them the right perspective of the war, and it is likely such plan will now be followed with the Medical Corps.

Surgeon General Ireland is fifty-one years of age, a graduate of Detroit College of Medicine and Jefferson Medical College. He has been in the Service practically since his graduation, served in Cuba and the Philippines, and was for a time stationed at Fort Sam Houston, Texas, under General Pershing. His is an active, vigorous personality, and he has a knack for executive work.

James H. Beal, ex-President of the American Pharmaceutical Association and first editor of the *JOURNAL A. PH. A.*, has been appointed a member of the Advisory Board on Medicinal Products to the Medical Section of the War Industries Board.

Harry B. Mason, for many years editor of the *Bulletin of Pharmacy*, has resigned this position to accept that of director of promotion, publicity and advertising for Parke, Davis & Co.

Prof. Joseph P. Remington saw the completion of the sixth edition of Remington's *Practice of Pharmacy*; Prof. E. Fullerton Cook assisted in several prior revisions and his name is on the title page of the last; Prof. Charles H. LaWall has now also been selected as one of the editors. The future editions of this standard will be taken care of by the editors who studied under and were associated with Professor Remington, and whose work will be carried on by them and revised as progress demands. Both of the editors are well known to pharmacists and their selection for this work was almost a foregone conclusion.

RAINEY BILL PASSED BY THE HOUSE.

The Rainey Narcotic Law passed the House October 2. The vote was unanimous.

SENATE COMMITTEE AGREES TO LOWER TAX ON DISTILLED SPIRITS.

In the consideration of the War Revenue Measure a tax of \$6.40 per gallon instead of \$8.00, was agreed to by the Senate Finance Committee, on distilled spirits for beverage purposes.

SOCIETIES AND COLLEGES.

MATCH LUZERNE COUNTY.

The Luzerne County Branch of the American Pharmaceutical Association is the name adopted by the pharmacists of Wilkes-Barre and vicinity for this new organization. Their success shows what may be done in organizing branches elsewhere. Up to date Luzerne County Branch A. Ph. A., has 51 members, and the enthusiasts say they will have 100 soon.

One of the first real accomplishments in the way of business was to fix the hours for drug stores, in this prosperous valley, from 9 A.M. to 9 P.M. That alone was worth many times the price of organization; the cooperation, friendship and monthly meetings will multiply the benefits to be derived therefrom. This is

a call for no less than one hundred other counties to "match Luzerne."

The officers of the Branch are: *President*, Walter Banker; *First Vice-President*, W. D. White; *Second Vice-President*, James F. Kane; *Treasurer*, E. R. Owens; *Secretary*, Joseph D. Morgan.

The Second Vice-President is from Pittston, the other officers reside in Wilkes-Barre.

THE TWENTIETH ANNUAL MEETING OF THE NATIONAL ASSOCIATION OF RETAIL DRUGGISTS.

The Twentieth Annual Meeting of the National Association of Retail Druggists was held in New Orleans September 16-20. As expected, the attendance was not as large as in

other years, but the interest of the members was centered on the Convention and much business was transacted.

The address of President W. H. Cousins gave a general review of the activities of the Association and urged the continued coöperation of the Association with the Government, with legislative committees, and a more intensive interest in matters of legislation pertaining to the drug business. He spoke for recognition of pharmacists by the Government.

Secretary Samuel C. Henry reported the addition of 1,236 members during the year. He explained the new conditions brought about by legislative enactments, and the increased work of the Organization Department.

Treasurer Grant W. Stevens reported a surplus in the treasury of \$37,198.80.

Among the recommendations of the Executive Committee were the following:

That the Association oppose all proposals which seek to consolidate Pharmacy Boards with other Boards or Commissions.



CHARLES F. HARDING, Cincinnati, Ohio,
President N. A. R. D.

That the Rainey Amendment to the Narcotic Law be defeated.

That the Edmonds Bill be supported.

That deferred classification be made for pharmaceutical students, so that they may continue their studies and that the public be not deprived of pharmaceutical service.

Cooperation with all branches of the Gov-

ernment in its prosecution of the war was pledged.

Because persons have been permitted to become registered pharmacists, both by examination and otherwise, without first becoming citizens of the United States, and these individuals are not amenable to the Draft Regulations and may continue in business to the detriment of citizens who are constantly being called from their business to the colors, which in effect accords special privileges by state laws to persons not citizens when such privileges are denied citizens, therefore the N. A. R. D. went on record as opposed to the registration of all persons as pharmacists who are not citizens of these United States or who have not at least taken out first papers certifying their intention of becoming citizens.

The U. S. P. and N. F. Propaganda Committee reported a busy year. It is contemplated that representation be secured for the Association on the U. S. P. Revision Committee. It was recommended that fluidextracts be replaced in the Pharmacopocia, in whole or part, by 50 percent tinctures, "or by some other representative class of medicine."

Among other resolutions adopted were the following:

Against compulsory health insurance laws.

For an American Materia Medica, as far as this is possible.

For proper modification of the Patent and Trade Mark Laws.

The members were urged to subscribe to the following pledge and to lend their efforts in combating of venereal diseases:

PLEDGE.

We, the undersigned druggists, appreciate the seriousness of venereal diseases, especially among the armed forces of the United States as indicated by the reports of the Surgeon General of United States Army, and we hereby pledge ourselves individually to coöperate with the United States Public Health Service and with all health authorities to do all that lies within our power as druggists to aid in reducing the venereal scourge among civilians, and specifically do we agree:

1. Not to prescribe or recommend any remedy for a venereal disease.

2. Not after this date to purchase a "proprietary remedy" for a venereal disease, and not to sell such "remedy" after Dec. 1, 1918.

3. To cause to be handed to every person asking for a remedy which we believe is to be used for a venereal disease without a physician's prescription, a card or other literature furnished us by the Surgeon General, directing such applicant to a reputable physician, to a board of health, or to an approved venereal clinic.

4. Not to refill prescriptions for the treatment of venereal diseases without the order of a physician.

It is understood the Government will require the physicians to sign the following pledge:

1. To keep accurate record of all venereal patients treated in accordance with State laws, and to report same to the proper health authorities required by the State, County or City.

2. To indicate where required on such individual record when the patient is discharged as cured and in such cases which fail to continue treatment to the point of cure, to report same to the Board of Health or competent authority.

3. To comply with the request of the Surgeon General, neither to compound or dispense remedial agents for venereal disease except in emergency conditions, and in such event to make complete notation of ingredients used and quantities of each on each occasion so dispensed.

4. Except in cases requiring special treatment to follow the method of treatment as laid down in the instructions and procedure outlined by the Surgeon General for cases of this character.

It was also resolved that the N. A. R. D. in convention assembled, petition our Federal, State and Municipal Governments to establish venereal clinics in various easily accessible zones where proper modern treatment of said diseases may be assured.

The entertainments of the meeting were successful in every way. Fortunately the business of the meeting was so arranged that all of Friday of the week was given over to the entertainments.

A pleasing event of the Convention was the election of Dr. Wm. C. Anderson, Wilhelm Bodemann, John W. Lowe and Simon N. Jónes as life members of the Association.

The following were elected officers for the ensuing year: *President*, Charles F. Harding, of Ohio; *First Vice-President*, W. A. Oren, of Indiana; *Second Vice-President*, Harry B. May-

er, of Tennessee; *Third Vice-President*, A. Wirth, of Louisiana; *Secretary*, Samuel C. Henry, of Chicago; *Treasurer*, Grant W. Stevens, of Michigan.

Executive Committee: *Three years*, Charles H. Huhn, of Minnesota; Walter H. Cousins, of Texas. *Two years*, James F. Finneran, of Massachusetts; Robert J. Frick, of Kentucky. *One year*, James P. Crowley, of Illinois; Theodore F. Hagenow, of Missouri.

FORTY-FOURTH ANNUAL MEETING OF THE NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

The forty-fourth annual meeting of the National Wholesale Druggists' Association convened during the week of October 7, in Hotel Astor, New York City. Notwithstanding the many things that interfered, general satisfaction was expressed because of the number present, and the meeting proved an interesting and profitable one. President Charles E. Bedwell, of Omaha, presided over the meetings. Loyalty was expressed in all transactions wherein the question entered; among the speakers were J. T. Allen, associated with the Y. M. C. A. overseas work, and at the banquet Hon. Martin Littleton and Dr. Royal S. Copeland, New York City Health Supervisor, who spoke also of the splendid coöperation from the drug industries in fighting the prevailing epidemic.

A. L. Everett, counsel N. W. D. A., declared that the Association had violated no law of the United States as alleged by the Federal Trade Commission, and characterized the publicity given to the charges of the Commission as shameful to a sincerely patriotic and honorable industry and that only the opportunity was lacking for the Association's officials to appear and show their innocence of the charges brought against them.

The report of Chairman R. R. Ellis, of the Trade Acceptance Committee, was most interesting and the plan of putting the system into effect is being perfected. While there will be some objection for a time, the establishment of it will bring about healthier business conditions.

The report of the Legislative Committee was important. While realizing that tremendous sums of money must be raised to carry on the war and to pay bills already contracted, even if the war should end soon, the wholesalers fear that the tax measure now proposed may prove so drastic in its charges that there

will be no business done on which the tax can be levied and collected. According to many members who spoke briefly after the committee had announced its report, a more reasonable basis for taxes will still allow a large volume of business to be done on which the net gain to the Government will be a great deal more than would a big tax on a small volume of business.

The matter will be taken up with the Senate Finance Committee and an effort made to arrange a compromise of some sort on drug taxes. It is feared by the wholesalers that if the bill goes through as now drawn, retailers will stop handling many proprietary and patent preparations on which the profit is already limited.

There was great interest in the salesmen's contest over papers on "Economic Value of the Wholesale Druggist and Reasons Why He Is Essential." The judges, Messrs. Walter V. Smith, Frank H. Garrett and J. K. Lilly, had considerable of a task, a duty they conscientiously performed, many papers being entered in the contest for which the prizes amounted to \$500.00.

New Orleans was chosen for the next place of meeting and Arthur D. Parker, of the host-

city, was elected president. Other officers chosen were *First Vice-President*, Joseph Plaut, New York; *Second Vice-President*, William J. Murray, Jr., Columbia, South Carolina; *Third Vice-President*, W. F. Cram, Des Moines; *Fourth Vice-President*, R. W. Blanding, Providence; *Fifth Vice-President*, Fred E. Yahr, Milwaukee. The Board of Control for next year consists of *Chairman*, George R. Merrill, St. Louis; L. D. Sale, Los Angeles; F. C. Groover, Jacksonville; H. D. Faxon, Kansas City; Lee M. Hutchins, Grand Rapids; R. R. Ellis, Memphis; W. T. Harper, Ottumwa, Iowa; G. Barrett Moxley, Indianapolis; S. D. Andrews, Minneapolis; B. A. Jackson, Providence; W. E. Greiner, Dallas.

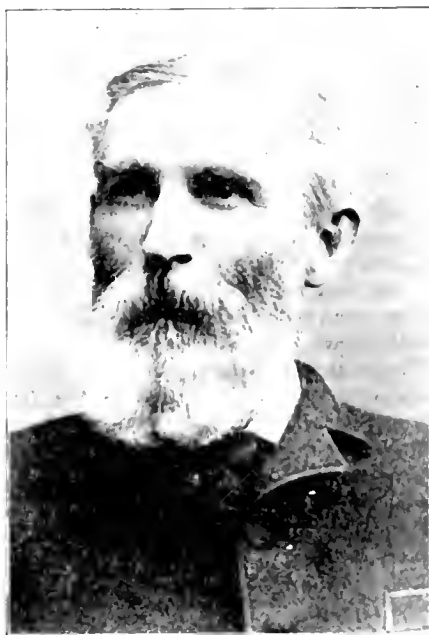
The Board of Control, at its organization meeting, reappointed F. E. Holliday as *Secretary* and C. H. Waterbury as *Assistant Secretary*.

Among the entertainment features were the President's Reception, a banquet, and a trip up the beautiful and busy Hudson. McKesson & Robbins issued *Drug Topics* as a souvenir booklet, containing the program, historical and local matter, and pictures of many members of the Association.

OBITUARY.

John Augustus Dunn, chemist for E. R. Squibb & Sons since 1866 and superintendent of the firm for about thirty years, died at his home, Brooklyn, N. Y., Friday, August 30. Mr. Dunn was a regular attendant at the annual meetings of the American Pharmaceutical Association until 1910. For the following data we are indebted to Mrs. Dunn.

Mr. Dunn was born in 1840 in St. Louis, Mo., and was from his early boyhood the constant companion of his dear friend, Dr. William F. Edgar, of Los Angeles, Cal. Dr. Edgar was U. S. Army Surgeon and before the Civil War was with the U. S. Government Scientific Survey. The deceased, then a boy, traveled with the expedition that was detailed to run the 35th parallel through New Mexico and to establish a U. S. Post at Albuquerque. These were the first white people who had ever penetrated that country. It was during this expedition that scientists first observed the land of the Cliff Dwellers and claimed that the peculiar formation was due to volcanic disturbance, while the men in the command looked on and argued "These things were made by human hands," which we all know was proven later. Wonderful and numerous were the tales



JOHN A. DUNN

this interesting old gentleman related of the primitive American Indian. As he always added "Still untainted by the inroads of Civilization." It was during this expedition that the Government imported camels to accompany the command across the American desert. The journey was hard and strange and the men impatient and often angry. Mr. Dunn has often told how much he was impressed when early one Sunday morning they espied the green country beyond the Sierras and the great Pacific in the distance. Not one word was spoken, but every single man fell upon his knees and prayed his thanks to the One who had safely brought them out of that alkali waste. They went on to California and were stationed at the Presidio and for a time at San Diego.

When the Civil War broke out Mr. Dunn came to New York with the troops and was in the Government employ as an apothecary. In 1866 he entered the employ of E. R. Squibb & Sons, Manufacturing Chemists, as superintendent and as such held sway until in the latter nineties he became one of the firm. He was an expert and an authority in his line.

About ten years ago his eye sight failed, but he did not give up active work until 5 or 6 years ago. He was up and around as usual the day before he died of a stroke, Thursday, August 29, from the effects of which he passed away Friday morning. Deceased was a graduate of the New York College of Pharmacy. He joined the American Pharmaceutical Association in 1867, always attending the conventions until 1910. He participated in the discussions and imparted much information from his well stored mind. In 1910 he was elected Secretary of the Historical Section.

Mr. Dunn was buried in the Cemetery of Holy Cross, Flatbush, on Monday, September 2. He leaves a widow, Annie E. and a daughter, Mrs. J. O. Reither, of Lynbrook, Long Island.

FREDERICK MICHAEL SCHMIDT.

Fred. M. Schmidt was born in Chicago, Ill., June 6, 1859, the son of Dr. Ernst Schmidt. Wilhelm Bodemann writes that the latter introduced him to the doctors of the Southside when he opened his store at the corner of Harrison and State in the vicinity of where Doctor Schmidt, the father, then resided, and thus began his friendship with the deceased. Mr. Schmidt was president of the Chicago Veteran Druggists' Association and presided at the Round Table September 26, two days prior to

his death. Contemplating a trip East, he bade his friends farewell after the weekly luncheon. His health had not been good for several years, but during his term of office he was a regular attendant at the luncheons.

Mr. Schmidt attended the Chicago College of Pharmacy and was secretary of the institution for several years after he graduated. He spent the years of 1865, '66 and '84 in Germany in completing his education and travel. As clerk he was employed with John W. Ehrman, Victor Erich, Otto Peuser and E. H. Sargent. In 1881 he opened a drug store on



FREDERICK MICHAEL SCHMIDT.

the second floor of the building at the northwest corner of Madison Street and Fifth Ave., and was the first one to open a pharmacy above street floor. In 1886 he became associated with O. F. Fischer, purchasing the E. H. Sargent Prescription Pharmacy; the latter later purchased the Wabash avenue store and Mr. Schmidt the one at 78 State Street, which he moved first to the Schiller building and afterward to the Mallers building.

Mr. Schmidt was member (1894-1898) and president (1898) of the Illinois Board of Pharmacy and of the Illinois Pharmaceutical Association (president 1899-1900).

In 1895 Mr. Schmidt married Miss Clara Louise Rehm, who, with a daughter and son, survive. The deceased joined the American Pharmaceutical Association in 1887.

C. V. D. A. MEMORIAL MEETING, OCTOBER 3, 1918.

After finishing routine business, October 3,

the Chicago Veteran Druggists' Association went into a memorial service for our President, F. M. Schmidt, who only a week previous presided as usual. His chair, tipped over, was draped in mourning and a red carnation pinned to the crepe—and this will so continue during October. Vice-President Frank Schrage assumed the Presidency, and at his request all members arose from their seats in silent prayer and reverence, and after short addresses were made by those who had known him best, *viz.*, G. P. Engelhard, O. G. Hottinger, E. von Hermann, W. K. Forsyth and W. Bodemann.

It was pointed out that his failing health for the last few years had made him rather an infrequent attendant at our meetings, but since he was elected to the Vice-Presidency, and subsequently Presidency—he was very seldom absent; it seemed as if the C. V. D. A. spirit had given him a new lease of life.

At the funeral five schoolday friends and Secretary Wilhelm Bodemann acted as pallbearers, and as they carried the coffin to the hearse the members of the C. V. D. A. formed a line, and dropped their one carnation on the coffin as a last tribute of our love and friendship and respect for the departed President.

(Sgd.) W. BODEMANN,

Recording Secretary, C. V. D. A.

George Kleinau, member of the American Pharmaceutical Association since 1911 and one of the best known and most active members of the New York German Apothecaries' Society, died at his home in New York on August 20, at the age of fifty-one. Mr. Kleinau was taken ill with Bright's disease in the spring, and retired from business on the advice of his physician, selling his store on Park avenue. He joined the New York German Apothecaries' Society in 1896 and was a staunch and active member up to the time of his death. He was for many years chairman of the committee on trade interests and took an active part in molding legislation in connection with pharmacy.

Sergeant Joyce Kilmer, son of F. B. Kilmer, member of the American Pharmaceutical Association, gave his life to his country in the performance of his duty in France, July 31, 1918.

H. C. Cousins, father of ex-President W. H. Cousins, of the National Association of Retail Druggists, passed away at his home at Wei-

ner, Texas, at 6 o'clock, p.m., Tuesday, September 24th, aged sixty-six years. Mr. Cousins was a pioneer of Texas, having come to the state nearly fifty years ago. Mr. Cousins is survived by his wife and seven children: W. H. Cousins, of Dallas, Texas; Mrs. J. R. Mitchell, of Weinert, Texas; A. J. Cousins, of Haskell, Oklahoma; Mrs. Bessie Gregory, of Los Angeles, California; H. H. Cousins, of Shreveport, La.; Mrs. Ben Bridges, of Ft. Worth, Texas, and Mrs. J. Milam Diggs, of Munday, Texas. He was laid to rest in the little cemetery adjoining the ranch where he had spent many years.

JOHN CHARLES GALLAGHER

John C. Gallagher, one of the oldest druggists of Jersey City, N. J., died October 2; he had been in poor health for several years. Mr. Gallagher was deeply interested in Association work and was president of New Jersey Pharmaceutical Association, 1914-1915, and a



JOHN C. GALLAGHER.
Jersey City, N. J.

member of the Legislative Committee for a number of years. He was elected a life member of the State Association in 1899, and joined the American Pharmaceutical Association in 1893.

We hope to make further mention of the deceased in the next issue of the JOURNAL.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo.

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESSES SINCE JULY 5, 1918.

HENSUGE, WM.

From Residence unknown.

To 1880 Rosalind Ave., Cleveland, Ohio.

LINDH, BERGER.

From 3000 E. 79th St., Chicago, Illinois.

To E. O. C. N. A. Ordnance Training Camp,
Camp Hancock, Georgia.

HAPKE, PAUL

From U. S. S. Brooklyn, care Postmaster,
San Francisco, California.

To U. S. Naval Hospital, Brooklyn, N. Y.

WOEHRER, FRED A.

From Drawer 1730, Great Falls, Montana.

To care Great Falls Drug Co., Great Falls,
Montana.

GEISENBERGER, ABE H., JR.

From Natchez, Mississippi.

To 411 Washington St., Monroe, Louisiana.

KRAEMER, GEO. C.

From 5969 South Blvd., Chicago, Illinois.

To 5952 West Lake St., Chicago, Illinois.

NEU, D. A.

From 423 Summit Ave., W. Hoboken, N. J.

To 145 Palisade Ave., W. Hoboken, New
Jersey.

OLMSTEAD, D. M.

From 215 W. Ohio St., Chicago, Illinois.

To 195 Exchange St., Rochester, New York.

TOCO, ORAZIO

From 211 W. 10th St., New York, N. Y.

To 147 W. 10th St., New York, N. Y.

WINTER, WM. P.

From 423 8th Ave., S., Nashville, Tennessee.

To 2801 West End Ave, Nashville, Tenn.

BERNSTEIN, MITCHELL, DR.

From 910 Tasker St., Philadelphia, Pa.

To 1437 S. Broad St., Philadelphia, Pa.

GOODRICH, FOREST JACKSON

From Univ. of Wash., Seattle, Washington.

To 112 N. 18th St., Philadelphia, Pa.

WINTERS, A. J.

From 605 N. Humphrey Ave., Oak Park, Ill.

To 2801 W. End Ave., Elk Rapids, Mich.

RABAK, FRANK

From 2918 16th St., N. E., Washington,
D. C.

To Bureau of Plant Industry, Washington,
D. C.

MERRILL, E. C.

From Bureau of Chem., Washington, D. C.

To 1211 Girard St., Washington, D. C.

ZUCK, F. J.

From 124 Royal Ave., Rockford, Ill.

To Kirkland, Ill.

BLUESTONE, ISADORE

From 14 Reed St., Pittsburgh, Pa.

To 1 B. 354 Craft Ave., Pittsburgh, Pa.

SCHOENHOLZER, EMIL, SGT.

From Livingston, Mont.

To Kelly Field No. 1, care Med. Dept., San
Antonio, Texas.

CHANGE OF ADDRESSES SINCE SEPT. 1, 1918.

ECHOLS, R. T.

From Pullman, Ill.

To 9635 Forest Ave., Chicago, Ill.

JORGENSEN, EDW. B.

From 644 Kearney St., San Francisco, Cal.

To 625 Kearney St., San Francisco, Cal.

MAC GREGOR, CHAS.

From 715 Washington St., Detroit, Mich.

To Box 378, Detroit, Mich.

HAMILTON, MARY R. (Miss)

From Residence unknown.

To Rochester General Hospital, Pinney St.,
Rochester, Pa.

CRAIG, HUGH

From 122 S. Mich. Blvd., Chicago, Ill.

To care Frederick Stearns & Co., Detroit,
Mich.

ORR, CHAS. C.

From 1504 E. 57th St., Chicago, Ill.

To care Parke Davis & Co., Indianapolis, Ind.

MORGAN, R. W.

From Residence unknown.

To Box 613, Indianapolis, Ind.

GRAHAM, J. R.

From Wheeling, W. Va.

To P. O. Box, Steubenville, Ohio.

GRANT, JOHN

From Jellico, Tenn.

To 306 Sanitary Train, Camp Mills, Long Island, N. Y.

BECKER, MAXWELL

From 2214 E. 35th St., Kansas City, Mo.

To 1233 Choctaw, Dewey, Okla.

REHFELD, GUSTAV, DR.

From 4314 Washington Ave., St. Louis, Mo.

To care Eli Lilly Pharm. Mfrg., St. Louis, Mo.

(To be continued)

DECEASED.

DUNN, JOHN AUGUSTUS

329 Stratford Road, Brooklyn, N. Y.

ROBERTSON, DAVID

U. S. A., Headquarters E. Div., Governors Island, N. Y.

TALBOTT, W. A.

Warren, Pa.

HALL, JOS. P.

920 Washington Sq., Suffolk, Va.

DRAKE, CHARLES

67 Main St., Wobbridge, N. J.

U. S. PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service for the period ended October 2, 1918.

Phar. Charles L. Schultz. Proceed to Stapleton, N. Y., for duty and assignment of quarters. Aug. 14, 1918.

Tech. Asst. A. Seidel. Proceed to Cambridge, Mass., to assist in work on pharmacology. Aug. 16, 1918.

Bacteriologist Clifford Pfau. Proceed to Newport News, Va., on special temporary duty. Aug. 15, 1918.

Asst. Chem. K. K. Marcus. Proceed to New York, N. Y., for the purpose of conducting certain tests on workers in explosive factories. Aug. 19, 1918.

Phar. J. A. Wolfe. Relieved at the Bureau. Proceed to the Marine Hospital, Pittsburgh, Pa. Aug. 29, 1918.

Spec. Investigator C. W. Metz. Transfer investigations of malaria to Lakeland, Fla. Aug. 30, 1918.

Scientific Asst. C. A. Abele. Relieved at Anniston, Ala. Proceed to Jackson, Miss., for duty. Aug. 29, 1918.

Scientific Asst. A. F. Allen. Proceed to Jackson, Miss., for conference with Scientific Asst. Abele. Aug. 29, 1918.

Scientific Asst. M. Carr. Proceed to Pittsburgh, Pa., for duty in connection with field investigations of industrial sanitation. Aug. 28, 1918.

Scientific Asst. Sam'l Sanders. Relieved at Macon, Ga. Proceed to Brunswick, Ga., to assume charge of sanitary district. Aug. 29, 1918.

Phar. E. S. Maguire. Relieved at Detroit, Mich. Proceed to Tampa Bay Quarantine Station. Sept. 7, 1918.

Phar. C. R. Ott. Relieved at Louisville, Ky. Proceed to the Marine Hospital, Detroit, Mich. Sept. 7, 1918.

Consulting Hygienist Otto P. Geier. Proceed to Cincinnati, O., by way of Nitro, W. Va., and assume supervision over sanitary matters in connection with the construction and operation of a Government nitrate plant near Cincinnati. Sept. 7, 1918.

Phar. C. H. Bierman. Proceed to the Boston Quarantine Station for temporary duty. Sept. 19, 1918.

Asst. Educational Director Paul B. Johnson. Proceed to Philadelphia to present the Government program for venereal disease control to the Pennsylvania State Medical Association. Sept. 27, 1918.

Asst. Educational Director Walter W. May. Proceed to New York City in connection with the operations of the industrial program for the control of venereal diseases. Sept. 30, 1918.

Asst. Educational Director Caroline Rosenberg. Proceed to Baltimore, Md., for conference with chairman of executive committee of Association of Railway Surgeons relative to measure for the control of venereal diseases. Sept. 26, 1918.

JOHN MCKESSON, JR.

NEW YORK, N. Y.

In the drug business for sixty-two years. Member of the American Pharmaceutical Association
for fifty-one years.



JOHN MCKESSON, JR.

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JOHN McKESSON, JR.

Few Americans now living have had a longer, more intimate, more active and more virile an influence on any industry of the United States than has John McKesson, Jr., President of McKesson & Robbins, Inc., on the drug industry.

It is doubtful if any man in America has a wider knowledge of drugs and chemicals, of their sources of supply, the quantities of them annually produced, who controls them and how to get them.

Counting his apprenticeship in the house of McKesson & Robbins, of which his father was one of the founders this is John McKesson, Jr.'s 63rd year in the wholesale drug business of America. At 78 years of age his hand is still at the wheel—the master hand of a great institution—strong, alert and skillful seemingly as it has ever been.

Methodically as the ebb and flow of the tide, unconscious of growing years, with a zest for the day's work ahead of him that many a younger man might envy, he is at his desk each day at the stroke of the clock. A gentleman of the old school, disdaining ease, inured to hard work, you'll find him there in rain or shine in his little private office, answering cables from all parts of the world, directing replies to important mail, giving instructions over the telephone and advice and counsel to his subordinates, his sensitive fingers every second of the day on the world's drug and chemical pulse. With agents in every section of the globe, where drugs and chemicals abound, that little room for more than half a century has been within an hour's touch of all the world.

When on that fateful day in August 1914 word flashed into that room from Europe that the torch of war had been lighted in the world's greatest source of drugs and chemicals, there flashed back, quick as lightning, a message that to thousands of retailers, physicians and hospitals in America was vital. That message flashed across the Atlantic and Pacific in the most critical hour the American drug and chemical industry has ever known, sent hundreds of tons of crude drugs and chemicals to this country from every point of the compass. His foresight and initiative in this situation helped to ease a situation pregnant with

serious possibilities. What he did for the trade in 1914, he did in 1916 and 1917 for the Government, and when it called it found him ready with the materials it needed. Profiting by his experiences in the Civil and Spanish wars, he knew what Uncle Sam needed and anticipated it.

For 50 years John McKesson, Jr. has aggressively pushed and sought to popularize high grade American drugs in Europe, especially American botanicals, and has done much to extend their use. He was one of the first wholesalers in the United States to enter the pharmaceutical manufacturing field, and to make the whole world his market by engaging in an international business. In China he introduced packaged drugs with Chinese labels on them and in Central and South America with Spanish labels. The Governments of France, Italy, Russia, Greece and other nations of the old world have been his customers. He ships to Iceland and Cape Town; from New Zealand to Greenland and all the points between. His representatives cover the earth.

Once a year for many years Mr. McKesson himself has visited all the leading markets of Europe to study conditions at first hand. He knew the drug markets of the world by personal contact; whenever he moved—he knew accurately what could be done. From the first he has worked to give to American drugs, wherever sold, a tone of the highest quality. Quality has been his touchstone for 50 years. For it he has fought and made many sacrifices.

Starting with one building in 1833, the institution, of which he is the head, under his leadership has grown into seven buildings, covering many acres of floor space and employing help now counted in the four figures. Under him and that of his energetic partner the late Daniel C. Robbins, many men now well known in the trade received their training and got their start, including Henry S. Wellcome of Burroughs, Wellcome & Co., Samuel W. Fairchild of Fairchild Bros. & Foster, George R. Millier of George R. Millier & Sons, Harry Hall of Hall & Ruckel, Joseph F. Glatz of Schering & Glatz, Chas. F. Ward of Ward, Close & Co., Charles McLaughlin of McLaughlin, Gormley King Co., George Hartford, and a long list of others.

Mr. McKesson joined the American Pharmaceutical Association in 1867.

E. G. E.

INDUSTRIAL ORGANIZATIONS.

General Charles Dick, a former Senator from Ohio writing in the *New York Commercial*, says:

"The era of compelled industrial competition will give to a better era of wisely controlled combinations. For thirty years it has been the fixed policy of the Government to prevent combination whenever it tended to restraint of trade, and to enforce competition. There was no distinction recognized between good combinations and bad combinations.

"The people, however, have seen a new light. The Supreme Court of the United States has discovered some good combinations, some of them so good, the court declared, it would be most unfortunate if such an efficient industrial organization should be destroyed. When the United States was forced by the necessity of war to take charge of industry and called on big business to fill war orders, it made no attempt to enforce competition. On the other hand, it encouraged combination, coordination and collaboration with a resulting increased efficiency in product and increase of output. It is inconceivable that we shall ever return to the unrestrained competition which once prevailed."

EDITORIAL

E. G. EBERLE, Editor

253 Bourse Bldg., PHILADELPHIA

PHARMACY ACKNOWLEDGED AN "ESSENTIAL SPECIALTY" OF ARMY MEDICAL PRACTICE.

THAT pharmacy is an "essential specialty" of Army Medical Practice has been acknowledged by the provision of a "pharmacy war course" for the Students Army Training Corps. Reports bearing on the subject will be found under "Correspondence." A number of schools are now engaged in educating and training several hundred young men in pharmacy according to a program which has been determined upon as best adapted for the needs of the Army. The subjects in which the enlisted men adopting this course are to be instructed include the branches taught in schools of pharmacy and, in addition, a study of War Aims and English Composition, and First Aid training.

Prior contention has been that pharmacists, as such, were not needed for the Army; they were not placed in the deferred classes nor assigned to duties for which they were qualified by education and training. Draft boards now may defer their enlistment if the needs of the community require that this be done, and further deference has been shown by giving enlisted men the opportunities of an education in pharmacy. These acts indicate a change of viewpoint relative to pharmacy or a conviction that pharmacists have in the past not been given due consideration.

If these courses had not been opened to prospective pharmacy students there would have been further grounds for criticism, and hence this argues that the action of the Committee on Education and Special Training deserves commendation. It must be borne in mind, however, that many pharmacists, as highly trained as the enlisted students will be, were not given the opportunity to serve in the positions for which they were specially qualified. It is clearly evident that very high appreciation of pharmaceutical attainments has been lacking, and the question of rank still remains, even for those who complete the "pharmacy war course." It is to be hoped that the indorsement given to pharmacy as an "essential specialty" of the Army medical practice will prompt the organization of a pharmaceutical corps as part of the Medical Department of the Army.

There is little satisfaction in the fact that in England about the same conditions obtain as in this country; there are, however, indications of improvement. A recent letter to the Pharmaceutical Society of Great Britain from the Director General of the British Army conveys the information that an Army Council instruction is to be issued embodying the principle of placing a pharmacist in charge of the dispensary of hospitals, and "it is hoped" that pharmacists thus posted will be given the rank and pay of sergeants. The question of higher rank

"is still under consideration." The same letter states that "arrangements have been made to enlist into R. A. M. C. all qualified pharmacists who may in the future be called into service."

When a pharmacist enters the Army and performs the duties of a pharmacist then certainly the service rendered by him is professional, and the fact that in many drug stores pharmacy is a small part has no bearing on the question of his rank or professional standing. The educated pharmacist would gladly discard most of the side-lines if the pharmacy would produce a sufficient income. Medical men usually have more influence with legislative bodies than druggists, but they seldom give strong support to the persistent efforts of pharmacists to secure legislation that will require graduation from a college of pharmacy as a prerequisite to practice pharmacy. If all states had "prerequisite" laws, then progress toward higher qualifications for pharmacists would naturally follow. Medicine will take a long step forward after the war, and it seems highly important that there be closer coöperation of the medical profession with pharmacy and more helpful encouragement given by the Government in order that an American *materia medica* may be further developed. With the beginning of the war our dependence on Europe for drugs was realized; pharmacy measured up to its responsibilities under trying discouragements and difficulties. The efficiency with which the drug industries met every demand made upon them has received favorable comment. As far as we know, there has been no attempt at profiteering and the Schools of Pharmacy or members of the faculties aided in one way or another in the maintenance of proper drug supply, or in training men for dispensing or hospital service.

There is a place for the drug store among our commercial activities and there is a real need for pharmacy. Theoretical ideas that pharmacy can at once be separated from the drug business should be absorbed by the purpose to provide greater and better opportunities for its practice. This cannot be done by discouraging those who earnestly seek to develop pharmacy and place it on a higher plane, nor by permitting merchants, on the one hand, to sell drugs without restrictions, nor, on the other, have physicians dispense medicines, which in many localities has made it absolutely impossible to carry on a pharmacy.

The progress of pharmacy is largely dependent upon medical practice and, reversely, the advancement of the latter will be sustained by progressive pharmacy. Every activity is endeavoring to profit by the lessons of the war, and the blood and treasure so lavishly poured out will have been in a measure wasted if humanity does not profit and benefit by the experience and knowledge gained on the battle-fields and in the hospitals from the treatment of injuries and diseases and a study of the action and production of prophylactic and remedial medicinal agencies.

We are pleased that the indorsement has been given to pharmacy, by the

Committee on Education and Special Training, and hope that there will be a further expression of confidence in its possibilities resulting in the establishment of a pharmaceutical corps as part of the Medical Department of the U. S. Army.

E. G. E.

THE SPANISH INFLUENZA.

IT MAY not be out of place to record in these pages a reference to the prevalence of influenza which has recently become epidemic in many sections of the United States and has prevailed in Europe for a number of months. The death rate in some localities has been seven times that of normal and the number of cases correspondingly large. Frederick E. Niece, a member of the Association residing in Queens Village, Long Island, died of the disease, which he contracted while experimenting to obtain a preventative serum. Death claimed quite a number of physicians and pharmacists. Unfortunately numerous remedies were suggested for the treatment of the infection, the chief object being the profit on the sales. The spirit of real helpfulness, however, largely predominated.

At the Phipps Institute, Philadelphia, the influenza germ was identified by Dr. Paul A. Lewis as Pfeiffer's bacillus, while Dr. Randle C. Rosenberger, bacteriologist at the Jefferson Medical College, has not been able to find the distinctive influenza germ. His finding seems to agree with that of Dr. Ulrich Friedemann, of the Virchow Hospital, Berlin, Germany; he had not found the Pfeiffer bacillus, streptococci and pneumococci being the most common agents of the complicating pneumonias. Dr. Richard Pfeiffer, Breslau, reported the finding of his bacillus in only a few cases.

It is conceded by a number of bacteriologists that the symptomatology and complications of the present epidemic correspond with those of 1889-90. Pfeiffer's bacillus was discovered in 1892. Dr. Kolle reported from Frankfort under date of July 18 that up to that time he had failed to detect Pfeiffer's bacillus in any of the cases he had examined. In practically all cases there were found, however, large numbers of a Gram-positive coccus—often in a pure culture or in symbiosis with pneumococci. The diplococci tended to develop involution forms and to grow in very large chains in the condensation water. He regards them as agents of a secondary infection in the Spanish influenza which he states *may* not be identical with the pandemic influenza of 1889-1893.

E. G. E.

CONDITIONS AFTER THE WAR.

IT CAN safely be said that the beginning of the end of the war is at hand. Matters affecting the drug business quite naturally enter into a discussion in this JOURNAL, of conditions after the war. Immediately after the beginning

of hostilities prices of nearly all drugs advanced, and as a result, an inventory of the average drug stock would have shown a large profit on the investment. The druggist who did not mark up his retail prices in response to the rising market lacked judgment, for such reasonable action could not be construed as profiteering. With the return of peace prices will decline, and it behooves dealers now to buy cautiously. As the value of drug stocks was increased by higher prices the inventories following the conclusion of peace will, in many instances, indicate a loss, for which those who have invested the profits of preceding years in Liberty Bonds will be prepared.

During the war period the cry has been shortage of help; hereafter for a time there will likely be an over-supply, and this may prove more disadvantageous than the previous condition by bringing about a return of unnecessary overhead expenses which were eliminated because employees could not be secured and, realizing this, the public did not complain though deprived of conveniences to which they had been accustomed. Extravagance is recognized as an American failing; we have willingly made sacrifices for the sake of winning the war; most of those who enlisted for the cause of the country did so with becoming patriotism; our soldiers suffered privations and hardships, without complaint; they endured their losses as heroes; but it is doubtful whether the lesson of thrift has been deeply impressed.

We owe a duty to those who served the country and the world; opportunities of education and employment must be given them when they return to civil life, and the drug stores of the country should bear their obligations in this respect in mind. The Government required many thousand employees in the war industries, who will be released, and they, too, have a claim on the public and must not be permitted to remain unemployed.

The return to peace conditions signifies a reconstruction period during which it has been said the mettle of America will be put to a test much more severe than that of the war, in which the armor of right and justice will protect us and only the might of mind will prevail. Of this period Dr. B. C. Hesse said in a prepared address for the Philadelphia Section of the American Chemical Society:

"In the tense industrial, commercial, and financial world-wide struggle that is bound to ensue directly after the close of hostilities, success will in all probability fall in a greater measure to those who have, in advance, prepared a comprehensive workable plan adapted for immediate development and operation, and sufficiently elastic to allow of effective adaptation to changing or unforeseen conditions, than to those who have not so prepared themselves."

The United States has shown its ability to save a world from autocratic and military domination; after peace is established her statesmen, financiers, business men and educators must show their ability to comprehend a vast and compli-

ated situation, to devise measures and supply means to master, control, guide and shape industrial and educational affairs so that the country will hold its front rank among the nations of the world.

Successful competition by the United States with other nations seeking markets for their products will compel the adoption of more scientific methods than have in the past obtained, and to this end the Department of Commerce will become more important and extensive as a source of industrial data for business and manufacturing interests.

Scientific management has been developed as a result of the war and closer contact between labor and capital is now more highly valued. The wonderful achievements of this country would have been utterly impossible without the really big men with these views, who developed the conservation and production plans which with the other equally important promotions enabled the United States to change the course of events in Europe. In the reconstruction following peace it is important that Capital have the viewpoint of Labor and reversely and, above all, that the principle of brotherhood, "Do as you would be done by," be accepted and more generally applied among nations and individuals.

E. G. E.

CALOMEL ASSAY (U. S. P.) IMPROVED.

BY A. B. LYONS.

The U. S. P. assay for calomel is neat and often expeditious. Sometimes, however, the calomel is exceedingly slow to dissolve in the prescribed volumetric solution. Increasing the quantity of the iodine solution helps materially. As much as 75 mls of the solution may be advantageously used in place of the 50 mls prescribed.

The difficulty is, however, wholly overcome by the simple expedient of doubling the strength of the reagent. It is as well to prepare a special volumetric solution by dissolving in 50 mls of water 13 grammes of iodine and 20 grammes of potassium iodide, adding a solution of 80 grammes of potassium iodide in 150 mls of water and making up with distilled water to 500 mls, or a little less. Standardize to a fifth-normal strength on an accurately standardized tenth-normal sodium thiosulphate solution.

In the assay use 0.5 Gm. of the dried calomel, 5 mls of water and 20 mls of the reagent, with no additional potassium iodide. Solution of the calomel will be effected in a few minutes. Titrate the residual iodine with tenth-normal thiosulphate solution, remembering to reckon the quantity of iodine solution as equivalent to 40 mls of a tenth-normal solution.

FLUIDEXTRACT OF SQUILL.*

BY R. I. GRANTHAM AND H. C. COLSON, JR.

Some time ago we called attention to the fact that the official dose of Squill preparations was not in proportion to the toxicity required for them by the biological standards of the U. S. P. IX, and we further pointed out that the commercial fluidextracts vary considerably in toxicity. We have also noticed since that time that commercial preparations vary considerably in the amount of total solids (10-30 Gm. per 100 mls) and the percentage alcohol (37-55%) which they contain.

We have deemed it advisable, therefore, to ascertain the cause for these variations and to devise a proper method for making fluidextract of squill. The U. S. P. IX process for making fluidextract of squill prescribes that the drug in *No. 20 powder* be macerated and percolated with *two parts alcohol and one water*. After a *definite volume* of the percolate has been received, it is directed that the alcohol be distilled and the liquid concentrated to a *definite volume*. After allowing the residue to cool, the gum, etc., are precipitated with alcohol and the residue washed with a diluted alcohol (4 parts alcohol and 1 part water). The combined alcoholic liquids are *distilled to a definite volume* and finally enough dilute alcohol is added to make a fluid, each part of which corresponds to one part of drug.

In any process for making fluid squill, the object in view is to obtain a product, of which 1 mil fully represents the active and therapeutic principles of 1 gramme of the drug. The process, which accomplishes this purpose in the simplest, most direct way is of course the best. In our opinion, few persons would say that the U. S. P. IX process is not complicated, but it might be assumed by some that if the directions were carried out properly a uniform product could be obtained.

The difficulties which are encountered in applying the U. S. P. process are: (1) the use of No. 20 powder, which becomes so gelatinous that percolation cannot be carried out; (2) the regulation of the definite volumes in the first and second stages of the operation. Upon this control of volume depend the qualities, chemical and physiological, of the finished product.

Our first experiments were made to find out if squill coarser than No. 20 powder could be used to obtain a satisfactory product. Fluidextracts were therefore made in accordance with the following specifications:

I. Squill No. 20 powder was exhausted according to the U. S. P. IX process, but the drug became so gelatinous that percolation could be perfected only by mixing purified sawdust with the drug.

II. Squill, very coarse powder, U. S. P. IX process. Percolation was satisfactorily carried out.

III. Whole commercial squill U. S. P. IX percolation process, which was satisfactory.

* Read before Scientific Section, A. Ph. A., Chicago meeting, 1918.

The three preparations were examined chemically for total solids and alcoholic contents, and biologically for toxicity by both the one-hour and twelve-hour frog assay methods. The one-hour frog test was made strictly according to the method of the U. S. P. IX. The preparations were also examined by the Houghton twelve-hour frog method, except that in calculating the H. T. U. per mil, 200,000 rather than 100,000 H. T. U. per Gm. of Kombé Strophanthlin was used. The M. L. D. and H. T. U. per mil for a standard F. E. Squill were assumed to be 0.0012 mil per Gm. frog and 80 H. T. U. per mil, respectively.

The chemical and biological tests on preparations I, II, and III are given in the following table:

TABLE I.

| Fluidextract No. | Solid matter in 100 mils. | Alcohol % by volume. | Percentage of toxicity. | | |
|---------------------|------------------------------|-------------------------|-------------------------|------------------|--------------------------------------------|
| | | | 1-Hour frog. | 12-Hour frog. | Ratio between 1-hr. and 12-hr. frog. |
| I..... | 7.2 | 62.5 | 192.0 | 250.0 | 1:1.302 |
| II..... | 5.7 | 72.5 | 138.4 | 175.0 | 1:1.265 |
| III..... | 11.0 | 60.7 | 204.0 | 286.0 | 1:1.402 |

No. 20 powder causes considerable trouble during percolation and the data in Table I indicates that a coarse powder or even the whole commercial squill will give equally good products and at the same time facilitate the carrying out of the percolation process.

IV. This experiment was made to find out if it was necessary to have the finished product as strongly alcoholic as the menstruum which is employed to extract the drug, and which at the same time would retain the original toxicity. For this purpose, the alcohol from 100 mils of preparation No. III was reduced from 60.7 percent to 37 percent. This yielded a cloudy solution which was filtered. This preparation is designated as No. IV, and had 9.4 percent total solids, 37 percent alcohol and toxicities of 140.0 percent and 187.5 percent by the one-hour and 12-hour frog methods, respectively. It will be seen by comparison of assays on fluidextracts III and IV that only 1.4 percent total solids and 31 percent toxicity were lost, when calculated on the assumption that fluidextract No. III contained 100 percent total solids and toxicity, respectively. The lower toxicity may be due to the effect of the heat applied in reducing the alcoholic content.

Our next experiments were made in order to determine the proper solvent for extracting the drug. The following fluidextracts were prepared, using in each case very coarse squill:

V. 100 Gm. of squill was exhausted with hot water, the solution concentrated to about 60 mils and then sufficient alcohol was added to obtain 100 mils.

VI. Fluidextract was made according to the U. S. P. VII process. A product was obtained which separated into two layers (30 parts top layer and 70 parts bottom layer).

VII. The drug was extracted with 90 percent alcohol, the alcoholic solution was evaporated and the residue taken up with 50 percent alcohol. The fluidextracts thus prepared were examined as to the amount of solid matter and the percentage of alcohol which they contained, and they were also tested physiologically, both by the one-hour frog method and the twelve-hour frog method.

The following preparations, namely, VIII, IX, and X, were each made in triplicate, and are designated as (a), (b) and (c). Preparations (a) in each case were made from one lot of drug, and preparations (b) and (c) in each case, from a second lot of drug.

VIII. (a) (b) (c) Squill extracted according to the U. S. P. IX method.

IX. (a) (b) (c) 100 Gm. of squill was digested with two portions of hot water (750 mls and 250 mls). The mixture was strained through cheesecloth. The bulk of the strained solution was then evaporated to a syrupy consistence, 200 mls of alcohol were added, the mixture stirred well and the alcoholic liquid decanted. The combined alcoholic liquids were then concentrated and the residue dissolved in sufficient dilute alcohol to make 100 mls.

X. (a) (b) (c) Drug was extracted with 80 percent alcohol and then proceeded as under VII.

These preparations were examined chemically and biologically with results as recorded in Tables II and III.

TABLE II.

| Fluidextract No. | Solid matter in 100 mls. | Alcohol % by volume. | Percentage of toxicity | | |
|---------------------|-----------------------------|-------------------------|------------------------|-----------------|--------------------------------------------|
| | | | 1-Hour frog | 12-Hour frog | Ratio between 1-hr. and 12-hr. frog. |
| IV | 9.4 | 37.0 | 140.0 | 187.5 | 1:1.340 |
| V | 36.0 | 38.0 | 78.5 | 97.8 | 1:1.245 |
| VI | 53.6 | 42.9 | 213.0 | 220.0 | 1:1.041 |
| VII | 3.4 | 50.0 | 120.0 | 132.2 | 1:1.110 |

TABLE III.

| Fluidextract No. | Solid matter in 100 mls. | Alcohol % by volume. | Percentage of toxicity | | |
|---------------------|-----------------------------|-------------------------|------------------------|-----------------|--------------------------------------------|
| | | | 1-Hour frog | 12-Hour frog | Ratio between 1-hr. and 12-hr. frog. |
| VIII. | | | | | |
| a. | 9.0 | 57.3 | 120.0 | 173.0 | 1:1.440 |
| b. | 12.4 | 63.0 | 132.0 | 152.8 | 1:1.158 |
| c. | 20.8 | 52.8 | 101.5 | 172.0 | 1:1.694 |
| Averages | 14.1 | 57.7 | 117.8 | 165.9 | 1:1.407 |
| IX. | | | | | |
| a. | 20.2 | 39.6 | 83.5 | 133.4 | 1:1.596 |
| b. | 12.4 | 38.0 | 126.6 | 116.0 | 1:0.917 |
| c. | 20.9 | 37.0 | 95.0 | 101.4 | 1:1.066 |
| Averages | 20.8 | 38.2 | 101.7 | 116.9 | 1:1.149 |
| X. | | | | | |
| a. | 16.2 | 50.0 | 128.0 | 153.8 | 1:1.202 |
| b. | 13.1 | 51.0 | 165.0 | 105.6 | 1:0.640 |
| c. | 14.8 | 49.5 | 97.8 | 114.4 | 1:1.170 |
| Averages | 14.7 | 50.4 | 130.3 | 124.5 | 1:0.957 |

DISCUSSION OF THE RESULTS.

The results given in Tables II and III show that water extracts the toxic principles of squill together with the gums and sugars which must finally be eliminated by precipitation with alcohol. By using 64 percent alcohol (U. S. P. IX solvent), we obtained the toxic principles, also the gums and sugars which must be removed by precipitation. Nothing was gained by the use of a 70 percent alcohol (U. S. P. VII 1890 solvent). Our experimental data show further that an 80 percent alcoholic menstruum gives a product of high toxicity and one in which the gums and a greater part of the sugars remain in the marc. The use of this solvent decidedly simplifies the unwieldy U. S. P. IX process and at the same time produces a fluidextract of squill containing a maximum of the therapeutic principles of the drug. By employing a 90 percent alcoholic menstruum, we obtained a product which was nearly as toxic and one which did not contain much

extractive matter. While the presence of gum, etc., does not greatly affect the toxicity of the preparation, they might as well be eliminated.

The U. S. P. IX process is capable of yielding a satisfactory product, and may be fundamentally correct. The process, however, is very unwieldy and evidently its practical application to large scale manufacture was not taken into consideration when it was designed. In the U. S. P. IX process, the volume of the original residue is difficult to control, hence by this process it is almost always impossible to obtain fluidextracts which are uniform in alcoholic strength and percentage of extractive matter.

While it is not within the scope of this paper to discuss the methods of biologic estimation of drugs in detail, we wish, however, to take this opportunity to say a few words regarding the relative merits of the two frog assay methods employed in this investigation.

A satisfactory biologic assay should give results which are comparable to chemical analyses in respect to accuracy, absolute as well as relative. The factor, which enters into all frog assay methods and which tends more than any other to prevent consistent and reliable results, is the rate of absorption of the drug. This variation in absorption may be due either to an idiosyncrasy of the test animal, temperature of medication (which should of course be kept constant) during the assay, or finally the nature and concentration of the drug itself. The 12-hour method practically eliminates this variability, as it allows sufficient time for complete absorption of the drug, regardless of the conditions which may be delaying absorption. As a result of this, the end-point in the 12-hour frog tests is never in doubt, that is, the animal is either dead or alive. On the other hand, the one-hour frog method of the U. S. P. IX leaves the interpretation of the end-point entirely to the experience and judgment of the operator. The degree and rate of absorption of the drug varies greatly in the one-hour frog tests and is the principal cause of the unreliability of this method. While the 12-hour method takes longer to complete, the cost per assay is only half as much as for the one-hour method, viz.: (\$0.60 as compared with \$1.25).

It has already been stated in this paper, that in the 12-hour frog tests the percentage toxicities of the squill preparations were calculated on a basis of 200,000 H. T. U. per Gm. of Kombé Strophanthin. Repeated tests on samples of Kombé Strophanthin from the largest manufacturers have always shown that in the 12-hour frog test, the M. L. D. for K. Strophanthin is approximately 0.000,0005 Gm. per Gm. frog rather than the average M. L. D. of 0.000,0010 Gm. per Gm. frog given by some authorities.

It is, therefore, the greater consistency, reliability and accuracy of the 12-hour assay, when made from season to season and with different lots of frogs, that makes it preferable to the official one-hour frog test for biologic evaluations of heart tonic drugs, and it is the method which furnishes the basis for discussing the relative toxicities of our squill preparations.

SUMMARY.

1. A satisfactory fluidextract of squill can be made with a powdered squill coarser than No. 20.

2. When either a 64 percent alcoholic menstruum (U. S. P. IX process), water, or a 70 percent alcoholic menstruum (U. S. P. VII process), is employed, the toxic principles of squill are extracted together with the gums and sugars which must later be eliminated by precipitating with a stronger alcohol.

3. The most satisfactory menstruum for extracting squill was found to be an 80 percent alcohol. This solvent removes a maximum of the therapeutic principles and at the same time leaves the gums and the sugars in the marc. The use of 80 percent alcohol simplifies the preparation of fluidextract squill and the product which is obtained is more uniform and the cost of production is greatly reduced.

4. The 12-hour frog method is more satisfactory and accurate than the official U. S. P. IX one-hour frog method for the biologic estimation of the relative toxicities of fluidextract squill or similar preparations.

COMMERCIAL VIBURNUM BARKS AND PREPARATIONS.*

BY ARNO VIEHOEVER, CLARE OLIN EWING AND JOSEPH F. CLEVINGER.

Among the domestic drugs which are collected rather extensively and used in medicinal preparations, mention must be made of two or three *Viburnum* species, namely *Viburnum opulus* L. (Cramp bark) and *Viburnum prunifolium* L., or *Viburnum lentago* L. (Black Haw bark). The demand for *Viburnum opulus* especially has been considerable during years past. The recent report in literature, referred to later, that *Viburnum opulus* was substituted by *Acer spicatum* L., to which the name cramp bark was given, therefore created considerable interest and suggested a collection of samples in order to verify the fact and the extent of the substitution. The survey was extended to the manufactured preparations and also to black haw bark and its preparations.

The substitution of *Acer spicatum* as "Cramp bark" for *Viburnum opulus* dates at least as far back as 1892. Here a bark obtained from a manufacturing house was submitted as "probably true Cramp bark, *Viburnum opulus*" to the Research Committee "C" of the Committee on Revision of the United States Pharmacopoeia (Sayre and Denniston 1898). The material, as we know to-day, however, consisted not of cramp bark, *Viburnum opulus*, but of maple bark, *Acer spicatum*.

The description which was given for cramp bark in the Pharmacopoeia VII and VIII, consequently was erroneous. In the latest (IX) revision of the U. S. Pharmacopoeia the description for this product has been omitted altogether, being given correctly now in the National Formulary (1916), with the omission, however, of the term "Cramp bark." Some dealers still list under the name "Cramp bark" or "So-called Cramp bark," the material obtained from *Acer spicatum*, and certain manufacturers appear to favor the application of the term to it.

In this connection it is interesting to note that leading pharmacognosists consider that the name "Cramp bark" applies to *Viburnum opulus* L. and not to *Acer spicatum* (Rusby, 1915, 1916; Kraemer, 1915; and Sayre, 1917). The following excerpts from an article on "Spurious Drugs" by John Uri Lloyd (1915), are of special interest:

"The use of *Viburnum opulus*, cramp bark, dates back to domestic medicine in the past century, its most conspicuous therapeutic introduction, perhaps, being in the Botanic Physician (1844), a work of 210 pages, by Dr. Elisha Smith, to which Dr. John King often referred in the first edition of his Dispensatory (1852). At that time, and for many years afterward, *Viburnum opulus* was employed in but small amounts outside the eclectic school of medicine. There was consequently no difficulty in obtaining, true to name, the moderate amount necessary to supply the demand for the drug. Came next a commercial demand for 'Viburnum,' instigated by proprietary preparations. *Viburnum opulus* was then the only drug recognized under the name 'cramp bark' (see the old American domestic remedy publications), and this demand for 'Viburnum' was abruptly stimulated. *Viburnum opulus* not being commercially very abundant, the drug practically disappeared from the market, the possible supply being insignificant in proportion to the amount required in commerce. It was then inexplicably replaced, under the name 'cramp bark' (which name originally applied to *Viburnum opulus* only), by the bark of *Acer spicatum*, or mountain maple, to which so far as I know, the name 'cramp bark' had not pre-

* Contribution from the Pharmacognosy Laboratory, Bureau of Chemistry, Department of Agriculture, Washington, D. C.

TABLE I.—EXAMINATION OF COMMERCIAL SAMPLES OF CRAMP BARK.

| No. | Label | | Part employed | Identity | Part used | Condition | | Quality |
|-----|------------------------------|------------------------|---------------|------------------------|-----------|--------------------|------------------|-----------------------|
| | Popular name | Scientific name | | | | Physical state | Wood present | |
| 1 | Cramp bark | <i>Viburnum opulus</i> | | <i>Acer spicatum</i> | Stem bark | Fine powder | Not excessive | Not U. S. P. spurious |
| 2 | " | " | | " | " | Very coarse powder | " | " |
| 3 | (so-called) Cramp bark | " | Whole bark | " | " | Whole | Few small pieces | " |
| 4 | " | " | | " | " | " | Considerable | " |
| 5 | (so-called) Cramp bark | " | | " | " | " | " | " |
| 6 | " | " | | " | " | Fine powder | Few pieces | " |
| 7 | " | " | | " | " | Chips | Several pieces | " |
| 8 | " | " | | " | " | Very coarse powder | Not excessive | " |
| 9 | " | " | | " | " | Small chips | Considerable | " |
| 10 | " | " | | " | " | Fine powder | Not excessive | " |
| 11 | " | " | | " | " | Chips | " | " |
| 12 | " | " | Bark | " | " | Chips | " | " |
| 13 | " | <i>Viburnum opulus</i> | | " | " | Coarse powder | " | " |
| 14 | Cramp bark | " | Bark | " | " | Chips | " | " |
| 15 | " | " | | " | " | Fine powder | " | " |
| 16 | " | " | | " | " | " | " | " |
| 17 | " | " | | " | " | Whole | Not observed | " |
| 18 | " | " | | " | " | " | " | " |
| 19 | Cramp bark | <i>Viburnum opulus</i> | | <i>Viburnum opulus</i> | " | Coarse powder | Not excessive | U. S. P. |
| 20 | " | " | | <i>Acer spicatum</i> | " | Whole | " | Not U. S. P. spurious |
| 21 | Cramp bark | " | | " | " | Small chips | " | " |
| 22 | " | " | | " | " | Fine powder | " | " |
| 23 | " | " | | " | " | Very coarse powder | Not observed | " |
| 24 | " | " | | " | " | Coarse powder | Not excessive | " |
| 25 | " | " | | " | " | Very coarse powder | " | " |
| 26 | " | " | | " | " | Coarse powder | " | " |
| 27 | " | " | | " | " | Chips | " | " |
| 28 | " | " | Bark | " | " | Very coarse powder | " | " |
| 29 | " | " | | " | " | " | " | " |
| 30 | " | " | | " | " | Whole | " | " |
| 31 | " | " | | " | " | Very coarse powder | " | " |
| 32 | " | " | | " | " | Fine powder | " | " |
| 33 | " | " | | " | " | Small chips | " | " |
| 34 | " | " | | " | " | Chips | " | " |
| 35 | " | " | Bark | " | " | " | " | " |
| 36 | " | " | " | " | " | " | " | " |
| 37 | " | " | | " | " | " | " | " |
| 38 | " | " | | " | " | " | Considerable | " |
| 39 | " | " | | " | " | Very coarse powder | Not excessive | " |
| 40 | " | " | | " | " | Chips | Considerable | " |
| 41 | " | " | | " | " | Fine powder | Not excessive | " |
| 42 | " | " | | " | " | Chips | Considerable | " |
| 43 | " | <i>Viburnum opulus</i> | | " | " | " | " | " |
| 44 | " | " | | " | " | Coarse powder | Not excessive | " |
| 45 | " | " | Bark | " | " | Chips | Considerable | " |
| 46 | " | " | | " | " | Fine powder | Not excessive | " |
| 47 | " | " | Bark | " | " | Chips | " | " |
| 48 | " | " | | " | " | Coarse powder | " | " |
| 49 | Cramp bark (genuine) | " | | <i>Viburnum opulus</i> | " | " | " | U. S. P. |
| 50 | Cramp bark or Mountain maple | " | | <i>Acer spicatum</i> | " | " | " | Not U. S. P. spurious |

TABLE II.—EXAMINATION OF COMMERCIAL SAMPLES OF BLACK HAW

| No. | Label | | Identity | Part used | Condition | | Quality. |
|-----|---------------|-----------------------------|--------------------------------------------------------------------------|-----------|----------------|--------------|-----------------------------|
| | Popular name. | Scientific name | | | Physical state | Wood present | |
| 1 | Black haw | <i>Viburnum prunifolium</i> | <i>Viburnum prunifolium</i> about 82% <i>Viburnum lentago</i> " " 18% | Root | Whole bark | About 17% | Not U. S. P. excessive wood |
| 2 | " " | " " | " " | Root | " " | " 15% | " " " " |
| 3 | " " | " " | " " | Stem | " " | " 15% | " " " " |
| 4 | Black haw | <i>Viburnum prunifolium</i> | <i>Viburnum prunifolium</i> | Bark | Whole bark | " 15% | Not U. S. P. excessive wood |
| 5 | " " | " " | <i>Viburnum lentago</i> | Root | Granulated | " 18% | U. S. P. " " |
| 6 | " " | " " | <i>Viburnum prunifolium</i> | " " | Whole bark | " 20% | Not U. S. P. spurious |
| 7 | " " | " " | <i>Viburnum acerifolium</i> (species) | " " | " " | " 20% | " " " " |

TABLE III.—ON THE COMPOSITION OF SOME COMMERCIAL VIBURNUM PREPARATIONS

| No. | Label | | Scientific name. | Tannin test | Valerianic acid test | Identity. |
|-----|-------------------------|-------------------------------------------|------------------|-------------|-------------------------|-----------|
| | Common name | | | | | |
| 1 | Fluidextract black haw | Fluidextractum <i>Viburni prunifolii</i> | Dark green | Positive | <i>Viburnum</i> species | |
| 2 | Black haw | <i>Viburnum prunifolium</i> | Medium green | " | " | |
| 3 | " | Fluidextract <i>Viburnum prunifolium</i> | " | " | " | |
| 4 | " | " | Dark green | " | " | |
| 5 | " | " | Light green | " | " | |
| 6 | " | " | " | " | " | |
| 7 | Fluidextract black haw | Fluidextractum <i>Viburni prunifolii</i> | Dark green | " | " | |
| 8 | Black Haw | <i>Viburnum prunifolium</i> | Medium green | " | " | |
| 9 | " | Fluidextract <i>Viburnum prunifolium</i> | " | " | " | |
| 10 | " | " | " | " | " | |
| 11 | Black haw fluidextract | Fluidextractum <i>Viburni prunifolii</i> | Light green | " | " | |
| 12 | Black haw | <i>Viburnum prunifolium</i> | " | " | " | |
| 13 | Fluidextract black haw | Fluidextractum <i>Viburni prunifolium</i> | Very light green | " | <i>Viburnum</i> species | |
| 14 | Black haw | <i>Viburnum prunifolium</i> | Medium green | " | <i>Viburnum</i> species | |
| 15 | Proprietary A | Fluidextract <i>Viburnum opulus</i> | Light green | Positive | " | |
| 16 | Cramp bark | <i>Viburnum</i> | " | " | " | |
| 17 | Viburnum | Fluidextract <i>Viburnum opulus</i> | Light green | " | " | |
| 18 | Cramp bark | Fluidextractum <i>Viburni opuli</i> | Medium green | " | " | |
| 19 | Fluidextract cramp bark | <i>Viburnum opulus</i> | Deep blue | Negative | Leaf species | |
| 20 | " | Fluidextract <i>Viburnum opulus</i> | " | " | " | |
| 21 | Cramp bark | " | " | " | " | |
| 22 | " | " | " | " | " | |
| 23 | " | " | " | " | " | |
| 24 | Fluidextract cramp bark | Fluidextractum <i>Viburni opuli</i> | " | " | " | |
| 25 | Cramp bark | Fluidextract <i>Viburnum opulus</i> | " | " | " | |
| 26 | " | " | " | " | " | |
| 27 | Fluidextract cramp bark | Fluidextractum <i>Viburni opuli</i> | " | " | " | |
| 28 | " | <i>Viburnum opulus</i> | " | " | " | |
| 29 | Cramp bark | Fluidextractum <i>Viburni opuli</i> | " | " | " | |
| 30 | Proprietary B | Fluidextract <i>Viburnum opulus</i> | Light blue | " | Leaf species | |

viously been applied." * * * * In this connection we might emphasize the fact that true "cramp bark" is unquestionably *Viburnum opulus*, but undoubtedly the bark of *Acer spicatum* has long been about the only "cramp bark" on the general market. "As a historical record it may be added that the early eclectics used, under the names 'Cramp bark' and 'High cranberry' the bark of *Viburnum opulus* only, a shrub native to the East, and well known to them."

It was pointed out by Farwell (1913) that the bark of the mountain maple (*Acer spicatum*) was being substituted for cramp bark (*Viburnum opulus*). To verify this statement and to determine the extent of such substitution commercial samples of "cramp bark" were collected throughout the United States in 1915 and examined as to their identity.¹ The results of our observations are incorporated in Table I, from which it may be seen that of the fifty samples examined, forty-eight proved to consist of the bark of *Acer spicatum* L. The other two were derived from *Viburnum opulus* L. Zufall (1915) and Rusby (1916) also state that samples of "cramp bark" proved to be maple bark and F. Beringer, as well as H. Kraemer reported similar findings to meetings of local branches of the American Pharmaceutical Association.

A similar examination of commercial samples of bark of *Viburnum prunifolium* showed that six were derived from the official species, *Viburnum prunifolium* L., or *Viburnum lentago* L., while one was derived from an unofficial *Viburnum species* (Table II). Both tables, furthermore, show that sample bearing the same label were found in all degrees of physical state, from whole to finely powdered bark, some devoid of wood, others containing very considerable amounts.

In view of the fact that substitution was observed and especially that such a large percentage of the samples of cramp bark proved to be spurious, a survey was made of *Viburnum* preparations in general on the market, in order to ascertain if similar conditions prevailed. Samples were collected throughout the United States in 1916, and examined as to their identity. The results of this examination are incorporated in Table III. It will be noted that in every instance preparations of *Viburnum prunifolium* were apparently true to label. On the other hand, of the fifteen samples supposed to be made from *Viburnum opulus*, only three were found to give a positive test for *Viburnum*. The other samples gave the reaction for *Acer* species, and in view of our findings regarding commercial "cramp barks," were very probably prepared from the bark of *Acer spicatum*. In this connection it is interesting to note that recent preparations of a certain manufacturer gave positive tests for *Viburnum*, whereas earlier preparations of the same manufacturer gave a reaction for *Acer*, thus indicating that correction of the error had been made in one instance at least, since the attention of the trade was called to the substitution of *Acer spicatum* for *Viburnum opulus*.

On account of the great extent of the substitution of *Acer spicatum* for *Viburnum opulus*, it seems advisable to again call the attention of the trade to this fact and to point out easy means of differentiation between the two by simple chemical tests, as well as by macroscopic and microscopic characteristics. (See S. R. A. Chem. 20, Item 216, 1917.)

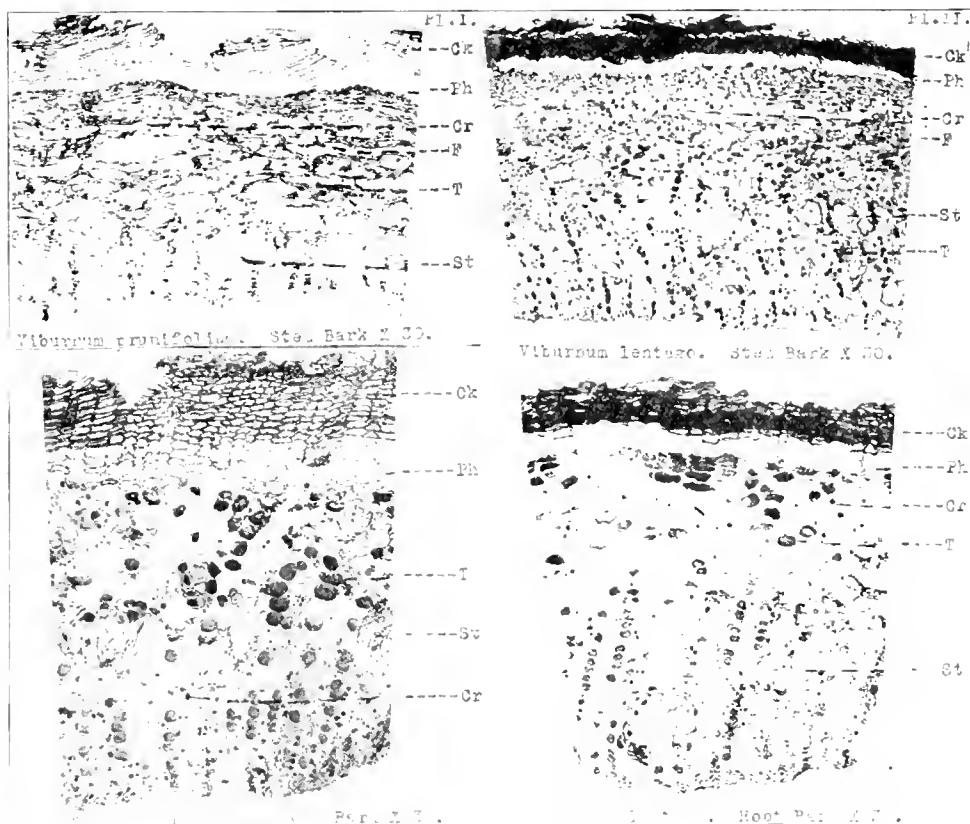
¹ In addition to authentic material collected by ourselves, authentic samples were obtained from C. J. Sargent, F. M. Crayton, and especially O. A. Farwell, to whom we wish to express our appreciation for their assistance.

The characteristics of the barks of *Acer spicatum* and of the official *Viburnum* species have been pointed out before in greater or less detail. Denniston (1898) has made a very thorough study of a number of American *Viburnums*, including *Viburnum opulus* L., *Viburnum prunifolium* L., and *Viburnum lentago* L., and has given accurate descriptions of the barks. Unfortunately, however, the material supplied to him as *Viburnum opulus* was in fact *Acer spicatum*, and his descriptions under the caption "*Viburnum opulus*" covers the main characteristics of mountain maple bark. Farwell (1913) described the morphology of the leaves as well as the histology of the bark of the American-grown *Viburnum opulus*, which he considers as *Viburnum opulus* L. var. *americanum* Aiton. We have as yet no evidence of any anatomical difference between the bark from *Viburnum opulus* and this variety *americanum*. Zufall (1915) suggested a revised official description of *Viburnum opulus*. His statement concerning the absence of oxalate crystals in maple and of fibers in cramp bark, as we understand from a personal communication, refers to the absence of oxalate rosettes in the one bark and the usual lack of fibers in the other. The author thus agrees with our findings.

The National Formulary IV (1916) gives a satisfactory description of *Viburnum opulus*, although omitting the name "cramp bark" altogether. The United States Pharmacopoeia VIII (1905) gives these names synonymously, but includes an erroneous description which applies to mountain maple instead of true cramp bark. Since these descriptions are easily accessible and generally satisfactory we consider it unnecessary to repeat them in detail. We desire only to point out the most striking characteristics useful for the identification and differentiation of the barks of the above-named species.

The bark of *Acer spicatum* is generally thicker and darker gray than that of *Viburnum opulus*, and usually has some woody tissue attached, while in *Viburnum opulus* the presence of attached wood is less frequent. The fracture of the bark of *Acer spicatum* is tough and very fibrous, due to the presence of large and numerous groups of long sclerenchyma fibers both in the stem and root bark. The fracture of *Viburnum opulus* is short and weak, since sclerenchyma fibers are usually absent in the secondary bark and are few and scattered in the primary cortex of the young bark. The bark of *Viburnum opulus* contains very numerous rosette crystals, scattered throughout the tissue of the inner bark, while *Acer spicatum* contains numerous prismatic crystals which occur in crystal fibers, generally accompanying groups of bast fibers. These are seen to best advantage in longitudinal radial sections. The root and stem barks of *Acer spicatum* are very similar in structure, while the root bark of *Viburnum opulus* differs from both of these and from its own bark as well, in showing almost an entire absence of stone cells or sclerenchyma fibers.

Viburnum prunifolium and *Viburnum lentago* both have short, weak fractures. The stem barks resemble each other very closely, but in the samples we examined the former had fewer and smaller groups of sclerenchyma fibers in the primary cortex and the groups of stone cells in the secondary bark were generally larger and more numerous. Their dimensions varied between 290-680 microns by 170-290 microns in cross section. The root barks also had a strong similarity to each other, but differed from the stem barks in that no sclerenchyma fibers were observed.

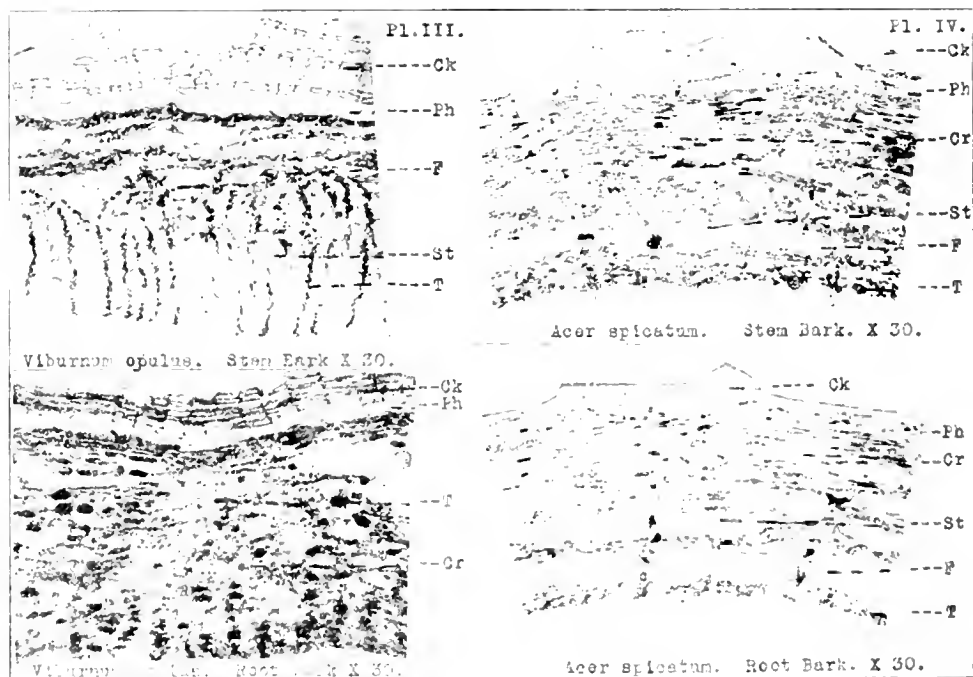


Viburnum prunifolium Plate I.—Ck, cork; Ph, phellogen; Cr, calcium oxalate crystals; St, stone cells; T, tannin cells; F, bast fibers. Plate II.—*Viburnum lentago*, abbreviations apply as in preceding.

The tannins are for the most part similarly located in all of the *Viburnum* barks described above. They occur chiefly in the medullary rays, but are also found scattered here and there in the parenchyma cells of the outer cortex. In the case of the *Acer* bark the latter type of distribution predominates. While tannins do occur also in the medullary rays they are possibly less numerous than in the case of the *Viburnum* barks, and are not quite so prominent. (See Plates I to IV.) The tannins of *Acer spicatum* can be distinguished from those of *Viburnum* species by their color reaction with freshly prepared one-tenth percent ferric chloride solution.

It was pointed out by one of us (Viehöver) at the October 1916, meeting of the American Pharmaceutical Association that both *Viburnum opulus* and *Viburnum prunifolium* contain tannins which give a green color or precipitate with iron salts, whereas *Acer spicatum* contains a tannin which gives a blue tannin or precipitate with iron salts. The reaction is given by both ferrous and ferric salts, but *freshly prepared* ferrous sulphate solution was selected because this solution possesses very little interfering color. This is advantageous, especially in the case of *Viburnum* preparations, where the color obtained is sometimes quite delicate.

In the case of the whole barks, the test was carried out by applying a drop



Viburnum opulus. Plate III. — Ck, cork; Ph, phellogen; Cr, Calcium oxalate, crystals; T, tannin cells; E, bast fibers; St, stone cells. Plate IV. — *Acer spicatum*, abbreviations apply as in preceding.

of dilute (1:1000) ferric chloride or ferrous sulphate solution directly to the inner surface of the bark. In the course of a few minutes a distinct green color appeared in the case of *Viburnum opulus* and *Viburnum prunifolium*, whereas a very deep blue to bluish black color developed in the case of *Acer spicatum*. The ground barks were tested by applying the reagent to the powder and examining in doubtful cases under the microscope.

Another simple and striking test is the red lignin reaction obtained in the case of maple bark, if a drop of phloroglucin-hydrochloric acid (phloroglucin 0.1 Gm., alcohol and concentrated hydrochloric acid 8 Cc., each) is applied to the inner side of the bark due to the numerous lignified sclerenchyma fibers in the bark. Some wood fragments are often attached to the barks; these have to be removed before making the test, which can, of course, also be applied to a section, preferably a longitudinal one. The phloroglucin-hydrochloric acid should be comparatively fresh and not too deeply colored.

The hydrochloric acid contained in the phloroglucin solution will furthermore develop, especially in the case of freshly collected *Viburnum* bark, the odor of valerianic acid, which is absent in maple bark.

In applying the tannin test to pharmaceutical preparations, the procedure was as follows:

Ten mils of the sample containing alcohol was diluted with about three volumes of water and shaken out with about 15 mils of ether. The ethereal layer was filtered and shaken gently in a test tube with an equal volume of water containing two drops of a freshly prepared saturated ferrous sulphate solution. A green color in the lower aqueous layer indicated a *Viburnum* species; a blue color indicated an *Acer* species.

In the case of preparations containing very small amounts of *Viburnum* accompanied by large amounts of interfering substances, it was necessary to evaporate a larger volume to dryness, take up with about 15 mls of 95 percent alcohol, dilute with water and proceed as usual.

St. John (1916) has pointed out that better results are obtained by shaking out with ether than with petroleum ether. We account for this by the fact that, although the tannins are insoluble in both petroleum ether and absolute ether, when a hydro-alcoholic extract is shaken out with ether, enough alcohol and water is taken up by the ether to carry along with it some of the dissolved tannins which are then tested for with the ferrous sulphate solution.

To confirm the results of the tannin test as applied to the pharmaceutical preparations, they were further tested in the following manner for the presence of valerianic acid, which is yielded by both *Viburnum opulus* and *Viburnum prunifolium* (Wehmer, 1911):

A small portion (several mls) was made alkaline with dilute sodium hydroxide, boiled to expel most of the alcohol, acidified with dilute sulphuric acid and warmed. In every instance where a *Viburnum* species had been indicated by the tannin test, the characteristic odor of valerianic acid developed.

In order to confirm the presence of valerianic acid, in one instance a larger amount of the preparation was neutralized with sodium bicarbonate, evaporated on a steam bath, acidified with dilute sulphuric acid and distilled with steam. The distillate was saturated with salt, shaken out with ether and the ethereal solution evaporated on the steam bath until the odor of ether was no longer perceptible. The remaining liquid was distilled and fractionated. It consisted largely of isovalerianic acid boiling at 170° and also probably contained a very small amount of normal butyric acid (b. $162-3$). The isovalerianic acid was identified further by the microchemical characteristics of the copper, zinc and mercury salts (Behrens, *Mikrochemischen Analyse*, 1897). For this purpose the fraction containing mainly isovalerianic acid was treated with varying concentrations of solutions of copper acetate, mercuric nitrate, and zinc nitrate, the latter yielding the best results. When a small amount of alcohol was added and a too rapid evaporation was prevented by carrying out the reaction in a moist chamber, the crystallization was facilitated. Notwithstanding this, considerable difficulty was experienced in obtaining the copper salt, probably due to the presence of a small amount of butyric acid which is known to interfere with this reaction. While characteristic crystals were obtained with all three reagents, the least difficulty in obtaining satisfactory results was experienced with the zinc. The characteristics of the crystals obtained are shown in Fig. 1. The butyric acid was indicated by the development of an odor resembling pineapples,

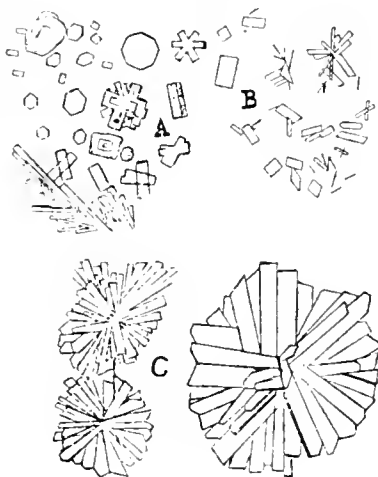


FIG. 1.

- A. Copper valerianate. $\times 130$.
- B. Zinc valerianate. $\times 130$.
- C. Mercury valerianate. $\times 130$
After Behrens.

due to ethyl butyrate, when a drop of the first fraction was heated with several drops of ethyl alcohol and one drop of concentrated sulphuric acid. The material at hand was insufficient to prepare salts of the acids for further macroscopic confirmation.

SUMMARY.

- (1) The bark of mountain maple (*Acer spicatum*) was found to be almost entirely substituted for true cramp bark (*Viburnum opulus*).
- (2) All samples of black haw (*Viburnum prunifolium* or *Viburnum lentago*) proved to be genuine with the exception of one, obtained from a non-official *Viburnum* species.
- (3) The preparations of black haw were made from *Viburnum* barks, while those of cramp bark were mostly manufactured from *Acer* species.
- (4) The tannins in the barks give different color reactions with iron salts; blue in the case of *Acer* and green in that of the *Viburnum* species. These reactions can be used to distinguish the barks as well as their preparations.
- (5) The tannins are distributed in the parenchymatic tissue, but can most easily be seen in the medullary rays.
- (6) Maple bark can furthermore be readily distinguished from the *Viburnum* barks by the intense red coloration when the inner bark is treated with phloroglucin-hydrochloric acid solution; in the case of *Viburnum* barks, more than a faint reaction, if any, is rarely obtained.
- (7) Among the differentiating tests of interest are those which were used to obtain and identify valericianic acid, yielded by the *Viburnum* barks but not by the *Acer* barks.

BIBLIOGRAPHY.

1897. Behrens, H., *Anleitung zur mikrochemischen Analyse*, 29-31.
1898. Denniston, R. H., *Pharm. Archives*, 1, 137-148.
1905. United States Pharmacopoeia, VIII, 499.
1911. Wehmer, *Die Pflanzenstoffe*, 744-5.
1913. Farwell, O. A., *Bull. Pharm.*, 27, 65.
1915. Kraemer, H., "Applied and Scientific Pharmacognosy," 753-6.
Lloyd, J. U., *Drug. Circ.*, 50, 87-8.
Rusby, H. H., *J. Am. Ph. A.*, 4, 1385.
Zufall, C. J., *Ibid.*, 4, 539-40.
1916. National Formulary, IV, 351.
Rusby, H. H., *National Standard Dispensatory*, 1751-3.
St. John, B. H., *Amer. Jour. Pharm.*, 89, 10-13.
1917. Sayre, L., "Organic Materia Medica and Pharmacognosy," 407-9.
S. R. A. Chem., 20, Item 216, p. 60.

WILD ANTHEMIS—A POSSIBLE MATRICARIA ADULTERANT.*

BY C. W. BALLARD.

Roman Chamomile or *Anthemis nobilis* L., was official in a previous edition of the U. S. Pharmacopoeia and this authority specified that the drug be obtained from cultivated plants. The product of wild growing plants contains more volatile oil and bitter principles. It is probably more active than the cultivated product. As the drug is used almost entirely as a carminative the milder and more agreeable flavor of the cultivated flowers has resulted in their displacing wild anthemis. It is recorded that anthemis infusions will, in some instances, cause nausea and it is probable that if wild anthemis were used in their preparation this undesirable property will be more marked.

* Prepared for Scientific Section, A. Ph. A., Chicago meeting, 1918.

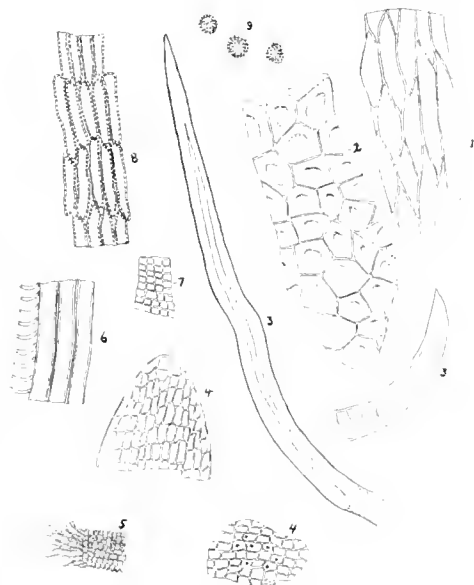
The writer recently had occasion to examine a sample of wild anthemis which was first offered under the designation "chamomile" or "Spanish chamomile." The title "chamomile" is manifestly erroneous, as in the present revision of the Pharmacopoeia the terms "chamomile" and "wild chamomile" are stated as synonyms for *matricaria*. The title "Spanish chamomile" is also untenable because the National Dispensatory reserves this as a synonym for *Anacyclus Pyrethrum*. The materials of the sample were finally classified as *Anthemis nobilis* (wild), by different pharmacognosists. This article is rarely seen upon the market and because of its appearance it would hardly be accepted in crude drug circles as Roman chamomile, although it might be mistaken for the so-called Hungarian or German chamomile (*Matricaria*). The drug trade has been accustomed to handling the cultivated anthemis which was formerly official; their customers recognize this variety as Roman chamomile and possibly know no other.

Wild anthemis flowers in the whole state show a degree of similarity to those of *matricaria* and this likeness might possibly cause confusion and errors in labelling. The most apparent characters of these flowers are the size and peculiar odor. They are of the usual composite type with a single circle of white ray florets and the yellow disk florets crowded upon the receptacle. Although the inflorescence is similar, it is about three times larger than that of *matricaria*. The odor is very penetrating and resembles that of amyl acetate, being very different from the mild and pleasant odors of *matricaria* and cultivated anthemis.

The botanical points of difference and relationships between cultivated anthemis, wild anthemis and *matricaria* might be summarized as follows:

| | Anthemis cultivated. | Anthemis wild. | Matricaria. |
|------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------|
| Type of inflorescence. | Compound; white ray-flowers in many series | Compound, white ray-flowers in single series | Compound; white ray-flowers in single series |
| Involucre | Bracts elliptical and pubescent; 2-3 series | Bracts obtuse and pubescent; scarious margins, imbricated in many series | Bracts oblong obtuse (oblanccolate); imbricated in many series |
| Receptacle..... | Conical or convex; solid, chaffy | Conical or convex, solid, chaffy at apex | Ovoid-conical, hollow, not chaffy |
| Ligulate florets..... | Numerous; in several series, pistillate; 3 toothed, 4 veined | Numerous (12-18) in one series, pistillate; 3 toothed, 3-6 veined | Numerous (10-20) in one series, pistillate, 3 toothed, 4 veined |
| Disk florets..... | None or few; perfect | Numerous; perfect | Numerous; perfect |
| Achene | Oblong; obtusely three-angled; pappus none | Oblong; pappus none | Obovoid; 3-5 ribbed, pappus none or mere membrane |

Powdered wild anthemis shows resemblances to both anthemis and *matricaria* in that the characteristic trichomes of the former and the numerous pollen grains



Wild anthemis ($\times 65$). 1, Bract tissue. 2, Petal tissue from ligulate floret. 3, Trichome from bracts ($\times 80$). 3', Trichome from stem. 4, Petal tissue of disk florets. 4', Petal tissue with rosette crystals. 5, Stigma from disk floret. 6, Fibrovascular tissue of stem. 7, Tissue of filament. 8, Anther tissue. 9, Pollen.

of the latter are present. At first sight it would appear as if the material consisted of a mixture of both chamomiles. The tissue elements present are those of the involucre, ligulate florets, disk florets and stems.

Involucre.—Fragment, of this tissue appear as long, white, polygonal cells without papillate surface. Simple multicellular trichomes with long, terminal cells similar to those commonly found in anthemis are attached to the outer surfaces of the bracts. In powdering, these trichomes become detached and appear free in the field.

Ligulate Florets.—This tissue appears in the form of irregular, white cells bearing prominent papillae and identical with the corresponding tissues of anthemis. Many of the cells contain small rosette crystals. The papillae on the surfaces and margins of the ligulate florets of *matricaria* are broader than those of anthemis and wild anthemis but are not as prominent.

Disk Florets.—The tissues of the disk florets include a membranous calyx similar in structure to the chaffy bracts. Corolla fragments with attached remnants of both androecium and gynaecium are also present. Referring to the botanical summary it will be noted that the receptacle of wild anthemis is chaffy and the same condition prevails in the cultivated anthemis. Trichomes of a type similar to those described under the involucral tissues, may be attached to portions of these chaffy scales. The corolla fragments are composed of irregular yellow cells which, with the possible exception of the lobes of the tube, are sparingly papillate. The stamen tissues appear as fragments of long, deep yellowish, pitted and striated cells. Pollen grains are fully as numerous as in *matricaria* and are of the spinose and three-pored type. The stigma and style tissues consist of thick fragments showing small, yellow, rectangular cells with their exposed surfaces covered with papillae. The papillae of the stigmatic surfaces are especially large.

Stem.—The stem tissues include short, thin-walled fibers, spiral vessels and an epidermis showing few stoma but numerous trichomes of two types. One variety of trichome is very similar to those found attached to the bracts but is rather smaller. The second type of trichome is curved, multicellular and with thick-walled terminal cell.

The present revision of the Pharmacopocia does not include a histological description of *matricaria* but the details of its microscopical structure will be found in most of the standard reference books on pharmacognosy. Anthemis is similarly described in these texts. By reference to such descriptions it will be apparent that the histologic distinctions between wild anthemis, cultivated anthemis and *matricaria* may be covered in the following brief statements:

Wild Roman anthemis chamomile is most easily distinguished from Roman chamomile (*Anthemis*, cultivated) by the numerous spinose pollen grains and the abundance of yellow stamen and disk floret tissues.

Wild Roman chamomile may readily be distinguished from the wild, Hungarian or German chamomile (*Matricaria*, U. S. P.) by the numerous trichomes of the anthemis type.

THE SEASONAL VARIATION OF ACIDITY, TOXICITY, AND ALKALOIDAL CONTENT OF THREE SPECIES OF LARKSPUR.

BY O. A. BEATH.

GENERAL DESCRIPTION.

The three species of larkspur selected in this investigation represent distinctive altitudes and habitats. The plains type (*Delphinium geyeri*), commonly called low larkspur, grows on the plains of Wyoming and Colorado at altitudes ranging from five to seven thousand feet. It usually appears during May, and under normal conditions of growth, may be found in full bloom the latter part of June. After the flowering stage the plant dries up and rapidly disappears from the range. This species is a dangerous one from the time it appears until the flowers are well developed.

The next species in order of elevation is represented by *Delphinium glaucescens*. This plant grows in the shaded areas of canyons and mountain sides at an altitude of about eight thousand feet. As a general rule this species appears in the early part of June and is in full bloom by the middle of July. On account of its habitat the plant remains fairly green until the seeds are well developed. The losses from this plant are insignificant.

Delphinium subalpinum (*D. barbeyi*), commonly called the "tall larkspur," grows at elevations ranging from nine to thirteen thousand feet. It grows largely in the open although one may find occasional patches partially shaded. On account of the climatic conditions encountered at higher altitudes, this plant has a variable growing season. *D. subalpinum* is one of the most poisonous of the larkspurs.

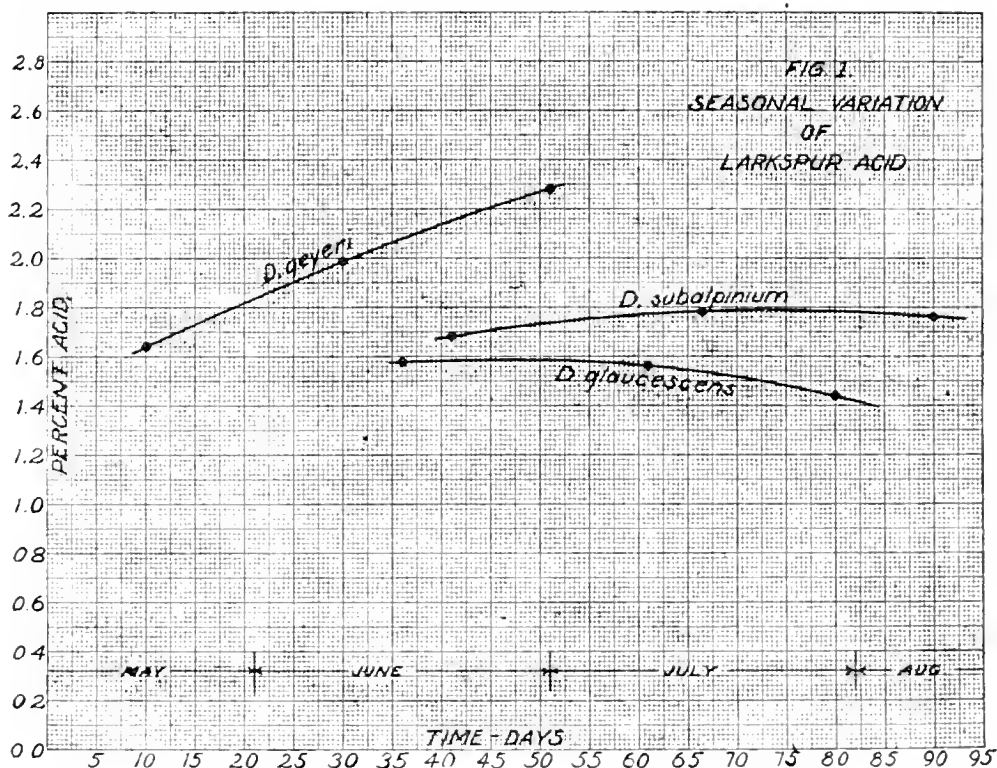
ACIDITY.

The expressed juice of the larkspurs is strongly acidic, and if appreciably diluted the concentration increases. Wicke¹ reports the free acid of *D. consolida* to be aconitic acid. His conclusion was based upon the fact that the silver salt had the same chemical composition as silver aconate, therefore, aconitic acid. The native larkspurs yield an acid having the chemical composition of $C_6H_6O_6$, but having physical and chemical properties quite different from those exhibited by the normal acid. It appears to be one of the two possible isomers. The acid obtained from the native larkspurs melts at $166-7^\circ C.$, is non-toxic and optically inactive. It is very soluble in ether, alcohol and water. The silver salt detonates when heated slightly. The ethyl ester boils under a pressure of 25 mm. at $171-2^\circ C.$

In addition to the free acid necessary to form the water-soluble salts (alkaloidal) the plant produces a considerable excess. The acid also enters into chemical combination with a crystalline alkaloid to produce an amorphous complex, the latter being much more potent than any of the crystalline derivatives.

Figure 1 illustrates in a general way the seasonal distribution of the uncombined acid. It is clear that in the early periods of development the relative quantity of acid is quite uniform for the three species. There is no apparent correlation between the seasonal variation of acid and crude alkaloid.

¹ *Annalen der Chemie*, Vol. 90, pp. 98-9.

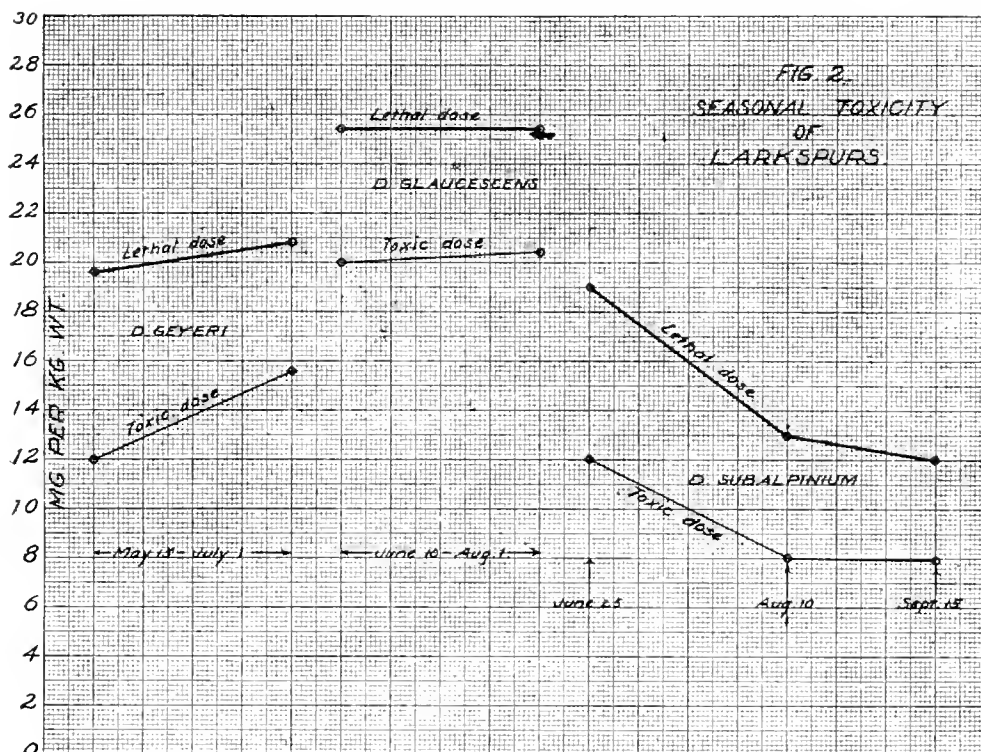


The relation of acid and toxicity will be discussed in another part of this paper.

TOXICITY.

The contributions relative to the seasonal variation of larkspur toxicity have not been consistent. The statement has been made, and seems to be borne out by range observers, that the larkspurs, as a rule, are more poisonous in the early stages of growth. Other contributing factors are involved while the plants are immature and must be carefully considered before final conclusions are drawn.

The experiments were undertaken to determine the period of maximum and minimum potency of the crude larkspur poisons at distinct stages of growth. The plants (whole) were carefully selected, dried, and reduced to a uniform powder. After percolating with alcohol the oils, fats, and resins were extracted with petroleum ether. The crude alkaloidal residues were taken up with seventy per cent alcohol and made up to definite dilutions. The extracts were introduced intravenously into full-grown rabbits. The tests were made in duplicates and the average results tabulated. Figure II illustrates the relative amounts necessary to kill and to produce symptoms. *D. glaucescens* is shown to be much less poisonous than the other two species, although exhibiting no apparent change with the advance in growth. The tall larkspur differs from the other two types in that, as the flowering stage approaches, the lethal dose becomes comparatively small. The crude alkaloid of the seeds has practically the same value as that found in the whole plant (flowering stage).

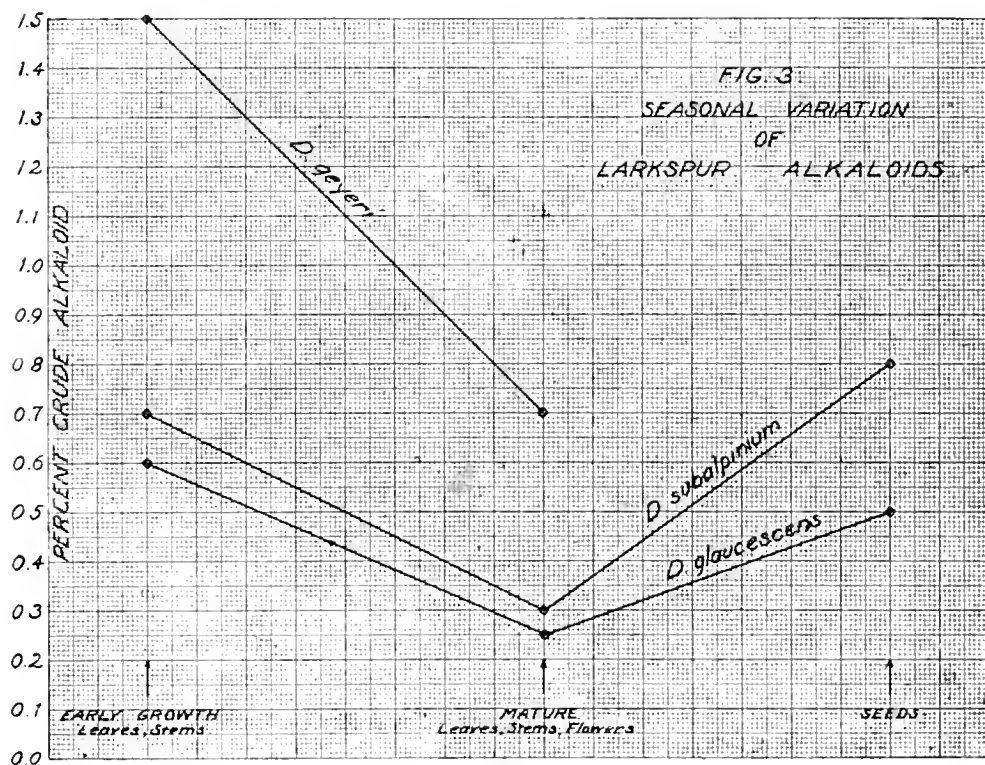


If the statement is correct that the larkspurs are more dangerous during the early periods of growth, clearly the cause is not due to greater toxicity.

D. geyeri and *D. subalpinum* are species representing the extreme conditions of growth, and yet the physical properties of the poisons obtained from them exhibit striking resemblances. *D. glaucescens*, the intermediate type, yields alkaloidal products markedly distinct from those of the other two species. The principal alkaloid is crystalline, optically active, has a structure much more complex than any other larkspur alkaloids and is present (crystalline form) in the plant at all stages of growth. Its physiological action closely resembles the low larkspur.

D. geyeri yields amorphous alkaloidal products only. In the early stages of growth, *D. subalpinum* yields one crystalline alkaloid, but it soon enters into combination with the plant acid to produce an amorphous product. The latter is very stable and requires saponification with alcoholic potash to resolve it into its constituents, acid and crystalline alkaloid. The toxicity of the amorphous complex is much greater than that of the simple base obtained from it. The low larkspur has the same general type of an amorphous alkaloid as found in the tall species. The crystalline alkaloid obtained by saponification is a new compound and differs from the other two bases in its physical and chemical properties. The pure alkaloid is very much less toxic than the amorphous complex from which it is derived.

The acid being non-toxic, it is interesting to observe that its combination with a slightly toxic base produces the intensely poisonous complex encountered in the two species. The alkaloids from *D. glaucescens* occur in the plant as salts. The corresponding amorphous complex is not formed in this plant.



SEASONAL VARIATION OF ALKALOIDS.

The determination of crude alkaloids in the larkspurs is attended with no difficulty if proper care is taken. It is necessary to use a mild alkali in breaking up the alkaloidal salts, otherwise decomposition follows and hence loss. The plant material was carefully selected, air dried, and reduced to a uniform powder. The moisture was determined on an aliquot portion, so that the percent of alkaloid has been computed on a bone-dry basis.

Figure 3 illustrates graphically the seasonal fluctuation. The three types follow the same general course, *D. geyeri* having the highest percent of any of the larkspurs. The seeds of this species were not obtainable. The pods of *D. subalpinum* and *D. glaucescens* contain far less alkaloid than the leaves and stems for the same period. As a rule the lowest alkaloidal content is reached when the plants are in full bloom. From this point on to the seeding stage, the percentage in the leaves and stems decreases somewhat while that in the seeds rapidly increase. An alkaloidal assay made on *D. subalpinum* at the time of seeding gave 0.25 percent of alkaloid in the leaves and stems, 0.25 percent in the pods, and 0.80 percent in the seeds.

The data indicate very clearly that the larkspurs are dangerous plants when immature, largely because of the quantity of alkaloid rather than its increased toxicity.

A Station bulletin is now being prepared giving the details obtained through a comprehensive chemical study of the larkspurs.

SECTION ON PRACTICAL PHARMACY AND DISPENSING, AMERICAN PHARMACEUTICAL ASSOCIATION.*

ABSTRACT OF THE MINUTES OF THE SESSIONS HELD IN CHICAGO, ILL., AUGUST 14
15 AND 16.

FIRST SESSION.

The first session of the Section on Practical Pharmacy and Dispensing of the Sixty-sixth Annual Convention, A. Ph. A., was called to order by Chairman J. C. Peacock, at 2:00 o'clock P.M., Wednesday, August 14. The Chairman read the following address:

Address of Chairman J. C. Peacock:

TO THE SECTION ON PRACTICAL PHARMACY AND DISPENSING, A. PH. A., CHICAGO MEETING,
1918:

In opening the sessions of the Section on Practical Pharmacy and Dispensing during such stirring times as these it becomes a patriotic duty to our cause to refer to those who, inspired by an earnest devotion to the same sixty-six years ago, came from the various parts of the United States and assembling in Philadelphia, the birthplace of our Nation, laid, as did its founders, the cornerstone of this Association, with a declaration for the right.

These men defined pharmacy to the Nation as a profession entrusted to the dispenser by both physician and community; they insisted that candor only as the true spirit of pharmacy be practiced, and they pledged their efforts to right the wrongs which pharmacy might correct. And there is no finer tribute which we can pay to their appreciation of pharmacy than to remind ourselves that they were in such close contact with the mortar and pestle, and in such immediate fellowship with the public that they saw in pharmacy the personal service to humanity both in the quality of their materials and in the art of dispensing them. They sought to improve both materials and art for the benefit of those they served. As individuals they were each and every one possessed of resource and determination; but they knew that they could learn from one another; they knew the value of united effort, and that through an association the good that each could do would be spread broadcast. And that is why they met. And if we read the deliberations of this first meeting we will be convinced that we have no higher, no more useful purpose to-day; for their object is still our object, and their spirit has always been and must remain the spirit of this Association.

PHARMACY AND THE PUBLIC.

While it is to-day our patriotic duty to pharmacy to refer to these zealous men it is equally incumbent upon us to declare that pharmacy must be further explained for a better comprehension of it by the people of our country, because we are asking our Government to give pharmacy the same consideration in war that it does in peace, for the benefit of the soldier who stakes his life in our defense. Our offer of the service of pharmacy to the soldier is not at all an unusual one, for when attired in the raiment of civil life he has it within easy access, and the Nation, as well as the State, has standardized this service and insists upon it for his and everybody's protection. But when the man is called to arms and takes upon himself the uniform he hopes to glorify; this very safeguard so provided and so insisted upon in civil life is denied him as though then unnecessary. This is neither consistency, justice nor respect for civil law; nor is it efficiency. That there are many pharmacists in the Army is known to all, and even in the face of the fact that they stand trained both as soldiers and pharmacists they are not specially selected to take care of and dispense the medicines needed by their comrades. Indeed, the scantiness with which they are called upon to do so is the result of sheer coincidence, while the neglect to use them for their special adaptation is so grossly apparent as to assume the proportions of a studied avoidance. This condition, fellow-members, makes it necessary to bring pharmacy into the lime-light of public attention, for we need the appreciation of the public to help us help the Nation's warfare by promoting the soldier's welfare. We must therefore advertise

* Papers with discussions thereon will be printed apart from Minutes.

this condition to the public as assiduously as our Nation is advertising its need for money to us in order to make a proper impress of this disregard of civil law which works an injustice on the soldier.

This is why pharmacy needs to be explained and demonstrated in daily practice to the end that the public shall understand it as a service of such serious import as to require legislative regulation, and not merely a word of eight letters appropriated some decades ago by the sign painter to make one drug store look different from another. And this advertising of pharmacy must be persisted in until every voter who has any interest whatsoever in the welfare of a soldier is not only disillusioned regarding any supposed present protection of the latter, but also shall demand that the civil rights of our defenders be not thus annulled.

Having thus devoted our attention to a patriotism demanded by our duty to the soldier and to pharmacy as well, we turn to thoughts pertaining to the progress of pharmacy and to conditions directly affecting the pharmacist.

THE U. S. PHARMACOPOEIA AND NATIONAL FORMULARY.

The best known accomplishment of American pharmacy that is in material form as evidence of its work and progress is the standardized materia medica which it has developed and which is embodied in the United States Pharmacopoeia and the National Formulary.

As our Association has Committees on both and of itself issues the National Formulary, and as these Committees report to this Section, it will not be out of place here to say a few words regarding these two legal standards as the evidence of the progress which pharmacy has made and is now making.

Sixty-six years ago the United States Pharmacopoeia was little more than a catalogue of titles and formulae. To-day it is an encyclopaedic volume, the study of which can not be too strongly recommended to practicing pharmacists; for it will prove a revelation to those who were graduated no less than ten years ago, and will awaken in every one a better idea of what is expected of pharmacists to-day. Nor can less be said of the National Formulary, which really is an "extra" U. S. Pharmacopoeia; and, because it is the work and property of our Association, we should feel both proud and duty bound to know its contents and its value.

THE JOURNAL AND THE YEAR BOOK.

And with the thought still in mind that pharmacy is improved in our trust by endeavoring to keep ourselves abreast of its progress, we want to refer to the JOURNAL of our Association as a potent factor in maintaining interest in pharmacy by recording its progress as a first consideration. This high-class periodical may be depended upon to bring each month a message of the true spirit of pharmacy with which it is inspired. Nor do we intend to pass mention here of the Year Book of our Association; a wonderful condensation of the pharmaceutical literature of the world; verily a volume of the "solid extract" of progress in pharmacy. The study of the JOURNAL and the Year Book will constitute what this Association has been so aptly termed—a post-graduate course in pharmacy. Our Association is fortunate indeed to be so ably represented to its members through the efforts of those who have these various duties in hand, and with unstinted enthusiasm may we display to the public these volumes of the progress of pharmacy as proof of the claims which we make for our art.

THE PRACTICE OF PHARMACY AND CONDUCT OF THE DRUG STORE.

The practice of pharmacy itself deserves a word of notice at our hands. The compounding of prescriptions remains as heretofore the best representative of pharmacy in our stores, for the reason that it is most closely associated with the work of the physician. It is the experience of those who have made the test that personal interest in the profession of pharmacy as attested by the care which is given to this department will produce the greatest assurance of one's ability and dependability through service to the public, and will build a prescription and drug trade among appreciative customers, the merits and stability of which will before long be recognized by physicians themselves, and not only command their respect but secure their encouragement and support.

Our Association has a committee on "Closer Affiliation of Pharmacists and Physicians," which might with advantage render a direct report to this Section, even if it did so in addition to the one intended for the General Session. The work of said committee is clearly related to the matters with which this Section has to do and I would, therefore, recommend that this thought be referred for consideration and action.

The scarcity of help is being severely felt by the pharmacist. Many are taxed to the limit of endurance by the combined effects of the work, care and hours of business. The time is propitious for the pharmacist to show his individuality by remembering that his hours to keep open store need not be influenced entirely by another's actions. An hour or a half hour taken from each end of the day will to that extent, at least, help conserve the health and strength of those in the store, as well as supply the encouragement of shorter hours to all. Indeed, one can not keep from seeing that the condition which confronts us makes for a permanently shorter working day for the drug store, as well as for many another vocation. These trying times will also put the loyalty of many to the test as between interest in pharmacy and side-lines. But though pharmacy may suffer because some give over their attention to side-lines and yet retain the name of pharmacy upon which to trade—a thing to be deplored—pharmacy will on the other hand, profit by such desertions to other interests as pass entirely out of its ranks.

Therefore, must pharmacy find within itself that temperament which will not allow it to be downcast because of such circumstances as have been mentioned?

WOMEN IN PHARMACY.

No sooner had enlistment and draft begun to show a depleting effect upon the labor needed for our large industries than women came forward to fill the places vacated. The advent of women into pharmacy some years back was a matter of much concern to those who have never quite understood that their mothers were women. But the doubts of these had already been dispelled before the present crisis arose to brush aside many a cherished notion as to women's work. Pharmacy in all its branches needs industry, care, neatness and devotion. It therefore offers an opportunity to those who have these requirements. As women can supply all of them, they are destined sooner or later, whether in war or peace, to find their way into pharmacy, and the exacting work of the prescription department will be their goal.

CONSERVATION IN PHARMACY.

Regarding the conservation of alcohol, glycerin and sugar by pharmacists we believe, that in so far as actual pharmacy is concerned, the best interest of the public can be served by pharmacists being allowed a sufficient supply of these materials for all pharmaceutical purposes. These actual needs will be found to be small in comparison with the annoyances, disappointments, and irregularities which must certainly arise if such supply is curtailed. There seems little reason why patient, physician or pharmacist should be exposed to the necessity for any other course. But improvement as a true economy may result from an interchange of views on the subject, therefore, a general discussion pertaining to War Emergency Formulæ has been scheduled for one of our sessions in order that the opinions and suggestions of all may have consideration.

THE ANTI-NARCOTIC LAW AND ITS ENFORCEMENT.

More than three years have elapsed since the enforcement of the Harrison Act, a sufficient time in which to observe its operation with regard to its effect on the practice of pharmacy. Few, if any, consider it perfect, but it has been accepted as a satisfactory first step in a worthy effort. It is the opinion of some that its existence will hasten the obsolescence of some of the compound opiates of the National Formulary, more especially those of such strength as require the special form of prescription. Such a result should encourage prescription writing, for if a physician decides upon the use of an opiate he will likely determine the dose and also state his preference as to what is to accompany it. It can scarcely be said that the operation of the Harrison Act has worked any hardship upon the pharmacist that has not been compensated for by an increased sense of appreciation, both by the public and the physician. And although a loose observance on the part of the pharmacist might at times apparently conciliate patient or physician, still, aside from every other consideration, self-respect demands a strict adherence, and confidence accrues only in him who will not intentionally deviate from the conditions imposed. We fail to see where any considerable volume of business of a desirable nature can be lost to the pharmacist either because of the law itself or through his strict adherence to its requirements. Nor can we conceive that any law which seeks to regulate the use of opiates with a view to restricting them to intelligent use will do other than help the practice of pharmacy.

It is unfortunate that we do not specifically have as inspectors under this law individuals who have had pharmaceutical training, that they may feel the spirit of the law, and by thus

appreciating the conditions under which it operates, help pharmacy toward what is possible in its improvement. Inspectors, without such training, may not comprehend the intent and technicalities and thus make of inspection a purely perfunctory service.

J. C. PEACOCK,
Chairman.

On motion of H. P. Hynson the address was referred to a committee of three, empowered to take up for consideration the different subjects touched upon by the Chairman, and submit them at the proper time in connection with other papers, or submit them independently if necessary, in some appropriate place in the program, so that the Chairman's views may be brought to the attention of the Association. Mr. Hynson also made the specific recommendation in support of the Chairman's suggestion that the Association be requested to send the report of the Special Committee on The Relationship of Physicians and Pharmacists to this Section.

The following papers were then read, discussed, and referred for publication:

"A Plea for a Closer Study of our Pharmaceutical Preparations in the Light of Criticism of the Medical Profession," by L. E. Sayre.

"A Proper College of Pharmacy Course that is of Interest to the Commercial Druggist," by Edward Spease.

"Spirit of Peppermint, U. S. P.," by E. F. Kelly.

"Therapeutical Standards, Past and Present," by Edward Kremers.

"Carbon Tetrachloride as a Solvent for Fats," by J. P. Snyder.

"On the Keeping Qualities of Dakin's Solution," by Irwin A. Becker.

"The Practical Pharmacist from the Manufacturer's Standpoint," by R. C. White.

"Note on Tincture of Cinchona Compound," by F. W. Nitardy. The paper was read by the Secretary.

The first session of the Section on Practical Pharmacy was then adjourned.

SECOND SESSION.

The second session of the Section on Practical Pharmacy and Dispensing was called to order by the Chairman at 2:30 P.M., Thursday, August 15.

Mrs. J. M. Kenaston read a paper entitled "The Pharmacist's Objectives." It was referred for publication after discussion.

REPORT OF THE COMMITTEE ON THE CHAIRMAN'S ADDRESS

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

Your Committee is seriously impressed by the most appropriate and comprehensive character of Chairman Peacock's address which shows creditable familiarity with actual conditions in the practice of pharmacy and offers practical and promising suggestions that will, undoubtedly, be helpful to those seeking a reasonable advancement of pharmacy and to those endeavoring to correct current abuses; the address is commended to both classes of reformers for serious study. It is also believed by this Committee that it would be wise for the schools of pharmacy to encourage the study of this and similar discussions by students of pharmacy, that they will be better able to confront conditions they will meet in their coming practice.

Especial attention is called to the Chairman's remarks on a number of pertinent subjects, and the suggestion is made that a careful general discussion of these be had by this section if time can be found for doing so. Such a discussion would probably result in finding a mode of handling the questions that would result happily to all concerned.

The subjects suggested in the Chairman's Address are as follows:

"The higher inspiration for pharmaceutical action."

"A better appreciation of true pharmaceutical practice by the public and, especially, by Government officials and by State and National legislators."

"Coöperation between physicians and pharmacists."

"A fairer understanding by the laity of the creditable work done by pharmacists in the making of our National Standards for medicines."

"Shorter hours and the conservation of help in pharmacy."

"The enforcement of the National Narcotic law and the character of inspectors required."

Respectfully submitted,

HENRY P. HYNSON,

(Signed) CURT P. WIMMER,

L. E. SAYRE.

The report was accepted and the recommendations contained therein were endorsed, and the Secretary was instructed to send a copy of this report to the succeeding officers of the Section.

W. L. Scoville then presented the report of the Committee on National Formulary. This report was referred to the Council. (See Committee Reports.)

The chairmen of the Committees on U. S. Pharmacopoeia and A. Ph. A. Recipe Book were unable to be present, and no reports were submitted.

The following papers were read:

"Pharmaceutical War Babies," by C. P. Wimmer.

"Percentage Solutions," by H. L. Thompson.

"Analysis of Milk of Magnesia," by R. W. Terry.

The Secretary then read a note from Professor J. U. Lloyd, who was unable to remain for this session. It follows:

"TO THE SECTION ON PRACTICAL PHARMACY AND DISPENSING:

My paper on 'Solvents in Pharmacy' continues the subject introduced last year. The newly introduced feature comprises descriptions of the meniscus that forms between separated liquids, the same being portrayed by illustrations.

This paper is not subject to condensation, is too precise concerning details to be read at length before the Section, and is therefore presented by title.

(Signed) JOHN URI LLOYD."

In order to open a discussion on the subject of War Emergency Formulas, a paper by Bertha Mueller, entitled "Notes and Suggestions on the Use of Glycerin in Official Preparations," was read by the Chairman.

A paper entitled "Continuous Percolation under Reduced Pressure," by J. G. Beard, was read by C. M. Snow. The following papers were read by title:

"The Druggist as a Public Notary," by Emil Roller.

"Laboratory Notes," by T. D. McElhenie.

"Some Views on Practical Pharmacy," by E. T. Hahn.

"A Combination Prescription Check, Cash Slip, Charge Slip and Working Record," by C. Osseward.

"Some Pharmaceutical Notes," by W. R. White.

Nominations for officers for the ensuing year were made, after which the second session was adjourned.

THIRD SESSION.

The third session was called to order by Chairman J. C. Peacock at 9 o'clock A.M., Friday, August 16.

The first paper was entitled "The Preparation of Tinctures by the Dilution of Fluidextracts." It was presented by Edward Davy. Then followed a "Prescription Clinic," by Charles H. LaWall. Both the paper and the Clinic elicited much discussion.

The Secretary then read a paper by F. L. Stone, entitled "Can a Retail Druggist Continue as a Manufacturer?" The following papers were then presented by title:

"A Utilization which Conserves," by J. C. Peacock.

"Lime, Lime Water and Lime Water Tablets," by R. W. Terry.

"The Use of Logarithms and Antilogarithms in Pharmaceutical Assaying," by H. L. Thompson.

"The N. F. Petroxolins and Paralle Preparations," by H. A. Langenhan and G. J. Noll.

"Sterilized Distilled Water," by E. F. Cook and L. Gershenfeld.

"An Experiment on Compound Tincture of Benzoin," by J. C. and B. L. DeG. Peacock.

"Absence of Inspection under the Harrison Act," by J. C. Peacock.

This concluded the papers, all of which were referred for publication. Further nominations were called for, and after balloting on the names of those presented as candidates as associate members on the Committee, the officers for the ensuing year were reported to be as follows:

Chairman, R. W. Terry, Groveport, Ohio.

Secretary, Edward Davy, Columbus, Ohio.

Associate Members, William Gray and Irwin A. Becker, both of Chicago, Ill.

The new officers were installed. The retiring Chairman thanked his colleagues for their help, and the third session was adjourned by the newly-elected Chairman, Robert W. Terry.

CONTINUOUS PERCOLATION UNDER REDUCED PRESSURE— REPORT No. 1.*

BY J. G. BEARD.

This will be a preliminary report on the progress I have made to date on a new (or at least modified) process for percolating fluidextracts.

This process consists essentially of extracting drugs in the preparation of fluidextracts through the use of a specially designed percolator that keeps the drug constantly in contact with fresh menstruum but not new menstruum. It may be thought of as a modified form of Soxhlet extraction.

The apparatus involved consists of four parts: A generator which is a glass distilling flask having an upright side-arm tube to permit introduction of a thermometer and a mercury gauge for measuring pressure; a percolator shaped like the Oldberg form but having a lateral tube opening into the percolator above the top of the drug and also entering below the lower portion of the drug, the object being to allow vapors from the generator to pass around the powder to be extracted and reach the condenser; a double Soxhlet condenser to be used as in reflux operations; and a tube from the top of the condenser leading to a vacuum pump. All of these parts are connected together perpendicularly by means of tightly fitting rubber stoppers.

The process is conducted as follows:

The drug from which the fluidextract is to be made is macerated for sixty hours with enough menstruum to render it distinctly and uniformly damp. At the expiration of this time the drug is placed in the percolator, which has been provided with a pledget of cotton, in a succession of layers, moderately packing the drug after the addition of each layer. An amount of menstruum exactly equalling the volume of fluidextract to be made is placed in the generating flask. The parts of the apparatus are then tightly connected together by means of rubber stoppers. Low heat is applied to the generating flask from a constant level water bath, and when the thermometer registers a temperature of approximately 30° C. the vacuum pump is started. The heat and suction are carefully continued until such a pressure and temperature are obtained

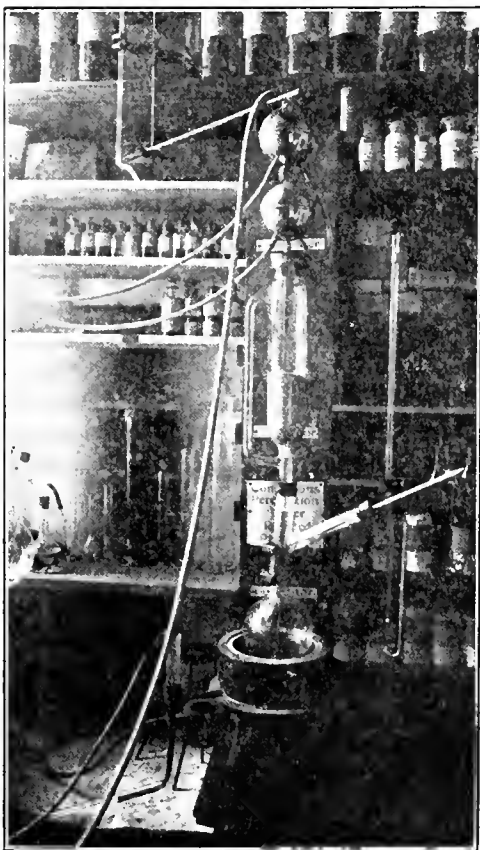
* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Chicago meeting, 1918.

in the apparatus as will enable the menstruum to boil between 35–40° C. With the source of heat remaining a constant, the tube leading to the vacuum pump is then tightly closed with a screw pinch-cock to seal the apparatus. The menstruum is rapidly vaporized on account of the reduced pressure and passes upward. When the vapors encounter the neck of the percolator they take the path of least resistance through the side-arm tube and thus pass around and out of contact with the drug. These vapors quickly reach the reflux condenser, are cooled, liquefied, and the condensed cold fluid drops straight down upon the drug where it acts precisely as in ordinary percolation, extracting the soluble principles in passing downward. When the percolate thus formed completes its passage through the drug it drops into the generating flask. The portion constituting the solvent is immediately vaporized again as fresh menstruum, and as such is capable of exercising the same solvent effects as on the first trip through the apparatus. The drug as a consequence is constantly subjected to the action of fresh solvent until finally all soluble matter is extracted and the process is completed.

When the operator believes that this point has been reached, he disconnects the generating flask and tests a small portion of the percolate as it leaves the neck of the percolator with an appropriate reagent, for example in the case of alkaloidal drugs, with Mayer's reagent. If the test is negative nothing further need be done beyond collecting the last drops of percolate and adding to the portion in the flask. If the test shows the presence of active principles the apparatus must be reconnected and the process continued for such time as in the judgment of the operator will have allowed the menstruum to complete the extraction. If the process has been carefully conducted the final volume of fluidextract will equal in mls the number of grammes of drug taken. Whether the finished product will be one hundred percent strong depends altogether upon the strength of the powdered drug taken. In the experiments so far conducted by the author the fluidextracts made by this process have represented in all cases a very close approximation in strength to that of the drug before extraction, and in some cases have tallied to two points to the right of the decimal.

In the case of alkaloidal drugs for which appropriate assays are prescribed by the Pharmacopoeia, the plan of the ninth revision can be followed and the fluidextract tested and brought to standard as well by this process as by the one official.

Up to the time this report was prepared the fluidextracts made were only



Apparatus for Continuous Percolation under Reduced Pressure

from drugs the official menstrua of which contained only alcohol, or alcohol and water. In the case of hydroalcoholic menstrua the water element has never been present in a greater ratio than one to three. There seems no apparent reason, however, why, for example, a glycerin, alcohol and water menstruum might not be used provided the first portion containing the non-volatile glycerin were added to the drug as in Type Process B.

A few fluidextracts like that of aconite are debarred from this process, since even the low heat of 35° C. would injure the active principles, but their number is very small. It should be borne in mind that in this process fluidextracts are made, as a result of reduced pressure, at a temperature no higher than normal blood heat.

Sufficient time has not elapsed to determine the keeping qualities of the fluidextracts made by Continuous Percolation under Reduced Pressure. The oldest preparation so made is from *nux vomica*—eight months old; however, in each case a fluidextract of the same drug was made by the U. S. P. method and reserved as a check. Both kinds of fluidextracts show the same degree of slight precipitation after standing several months.

The advantages which it is believed this process offers are threefold: (1) A saving of menstruum, the only loss being that amount retained by the drug after pressing. (2) Economy of time—after the process is started, the operator's time can be given to other work. (3) If the method be proved as practicable as incomplete experimentation leads one to believe, fluidextracts can be made at less cost than they can be purchased.

The fluidextracts which have been satisfactorily made by the above process are those of *nux vomica*, *hyoseyamus*, *cannabis*, *guarana*, *pilocarpus*, *podophyllum*, *buchu*, *gentian*, *spigelia*, *staphisagria*.

PHARMACY DEPARTMENT,
UNIVERSITY OF NORTH CAROLINA.

CARBON TETRACHLORIDE AS A SOLVENT FOR FATS.*

BY J. P. SNYDER.

The ninth edition of the pharmacopoeia has in the case of certain drugs which contain considerable quantities of fats and oils directed that these be removed by treating them with purified petroleum benzene. There is a decided improvement in the finished preparations over those of the U. S. P. VIII, which is particularly noticeable in Tincture of *Strophanthus* and Fluidextract of *Colehicium Seed*. Formerly, these preparations, when made according to the previous official formula presented a rather unsightly appearance and precipitated badly. The use of a solvent for the fats is evidently the logical method for the removal of these inert substances as our experience has been that it is preferable to attempting to freeze out the fats in the finished preparation.

Petroleum benzene, however, is open to serious objections: Firstly, as it is extremely difficult to drive off completely its peculiar odor which may be easily detected in the finished preparation.

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Chicago, meeting, 1918.

Secondly, the danger connected with its use: We are all familiar with this liquid and know how highly inflammable it is and while the danger may not be great in treating 100 or 1000 grammes of the drug with this liquid, it often becomes necessary to manufacture 10, 50 or 100 gallons, or more, in which case large quantities of the drug impregnated with this highly inflammable substance must be spread out to dry. While this operation is taking place one cannot rest easily when he realizes that it only requires a spark to start a serious conflagration.

Thirdly, its use is not economical: Owing to its properties previously described, no one would care to take the chance of recovering it by distilling it over a naked flame and while it may be distilled in a steam jacketed pan, the disagreeable odor remains in the pan for a considerable length of time and may contaminate other batches and consequently, if thrown away, it represents a clear loss.

The above shortcomings of petroleum benzene led us to endeavor to find a liquid that would not be open to these objections and which would remove the oily ingredients from the drugs. After considering the list of available substances, we finally decided to try carbon tetrachloride. This liquid readily exhausts completely the fats from such drugs as strophanthus and colchicum seed, while the active therapeutic ingredients are not disturbed, as is shown by subsequent physiological and chemical tests. Upon exposing the drug to the air and sunlight, the carbon tetrachloride may be readily and completely dispelled and there is no odor of this liquid in the finished product. It is absolutely impossible to ignite it, in fact, it is the principal ingredient of several patented fire extinguishers. No danger is connected with distilling it, as we have oftentimes distilled small amounts over a naked flame in our laboratory, as well as treating large quantities in our steam stills without contaminating other batches.

In fact, carbon tetrachloride possesses all the properties of petroleum benzene as far as its use as a solvent is concerned, and it is free from the objections and dangers of the latter.

ANALYTICAL LABORATORIES,
NORWICH PHARMACAL COMPANY.

PHARMACEUTICAL WAR BABIES.*

BY CURT P. WIMMER.

The term "War Baby" has been jocularly applied to the various creations, both abstract and concrete, of the world war. Popularly created nomenclature is invariably significant if not correct, and I use the term here to mean the newer pharmaceutical preparations created by the war. Truly, they are war babies, for only time can tell whether they will live and become useful members of our formularies or whether they will disappear.

It is the object of this paper to present a brief review of a number of the more important pharmaceutical preparations which have come into use during the last few years. All of these preparations, evolved through the exigencies of war, are used to combat sepsis, and to heal wounds or burns.

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Chicago meeting, 1918.

Inasmuch as infected wounds constitute by far the largest number of cases requiring treatment, it is but natural that physicians from the very beginning of the war sought the ideal antiseptic. The first one to become widely used was iodine. This was supplied to the troops put up in ampuls and millions of them have been used.

English physicians tried out a variety of substances. Sir Rickman Godlee treated wounds with pure carbolic acid, following the treatment with applications of a cyanide dressing. G. Lenthal Chetle used a combination of mercuric chloride and carbolic acid; another physician recommended the use of mercuric chloride and serum. Others advocated the use of such substances as garlic juice, urea, turpentine, liquid paraffin, salicylic acid, etc.

To Sir Almroth Wright must be given credit for suggesting the irrigation of wounds and the insertion of antiseptic tablets into wounds. Then came "Eupad," a mixture of equal parts of bleaching powder and boric acid, and "Eusol," consisting of 12.50 Gm. each of bleaching powder and boric acid mixed with 1 liter of water. From this Dakin proposed his original formula, as follows:

Sodium carbonate, dry, 140.00 Gm. Dissolve this in 10 liters of tap water and add 200 Gm. of chlorinated lime of good quality. This is shaken and set aside; then the liquid is syphoned off and filtered through cotton. Now add 40.0 Gm. boric acid and allow to dissolve. The solution is now ready for use. This solution was to contain about 0.50 percent of hypochlorous acid. Carrell, who used this solution in the irrigation of wounds, soon found that it was of importance to have this solution neither too alkaline nor of a too high hypochlorous acid content and placed it by proper modifications upon an exact basis by requiring titration to determine its strength. The details of the preparation and analysis of the Carrel-Dakin solution have been treated in such exhaustive manner in publications of late that I will not touch upon them here. Suffice it to say that of all the pharmaceutical war babies, this is the one most likely to survive.

A preparation which is now largely used and which is distinctly a creation of the war is the so-called "Bipp Paste," a bismuth subnitrate, iodoform-paraffin combination. Its formula is as follows:

| | |
|----------------------|------------------------|
| Iodoform | 8 ounces |
| Bismuth Subnitrate.. | 8 ounces |
| Liquid Paraffin..... | q. s. to make a paste. |

After cleansing the wound it is completely filled with this paste and dressed with sterile gauze. It is not necessary to change the dressing unless pain is experienced by the patient. It is of course very important that this paste be absolutely free from gritty material.

It has been found that the crystallized iodoform, reduced to a very fine powder, is less apt to produce iodoformism than the granular form. If iodoformism sets in, potassium bicarbonate is given in 15-grain doses to combat it. A metallic spatula must not be used in the preparation of this paste.

Chloramine T (sodium para-toluene sulphochloramide) and Dichloramine T (toluene parasulphodichloramine) next engage our attention. Of these two antiseptics the latter is more extensively used because of its solubility in eucalyptol, which solution can then be diluted with paraffin oil. The antiseptic action of this substance depends upon the fact that chlorine is slowly given off, which exerts

the specific effect. In making solutions of Dichloramine T it is preferable to use chlorinated oils to prevent or retard the decomposition of the medicinal ingredient. A nasal spray, for example, may be prepared by dissolving Dichloramine T 0.20 Gm. in 2 Cc. of chlorinated eucalyptol and adding 8 Cc. of liquid paraffin. A 10 percent stock solution of Dichloramine T in chlorinated eucalyptol will keep for about one month. Quite recently Dakin and Dunham (B. M. J.) announced that they had discovered a new solvent for dichloramine by chlorinating hard paraffin. This process is, in short, the following: Paraffin melting at $50^{\circ}\text{C}.$, or higher, is selected and placed into two flasks connected in series. It is heated to $120^{\circ}\text{C}.$ and a rapid current of Cl gas is passed through until the paraffin is saturated or until the contents of the flasks have increased 45-55 percent in weight. The oily liquid formed is shaken with 5 percent of its weight of sodium carbonate and filtered through a dry fluted paper. This chlorinated paraffin is a clear, viscid liquid of a yellow color and slightly heavier than water. The authors propose to call this liquid Chlorcosane. It is capable of dissolving $8\frac{1}{2}$ to 10 percent of Dichloramine T. For wound treatment a $7\frac{1}{2}$ percent solution is sufficiently strong. For spraying it may be diluted with 10 percent carbon tetrachloride.

Dichloramine T and its preparations have been fully described in our literature. At the recent meeting of The New Jersey Pharmaceutical Association, Prof. E. Fullerton Cook read an excellent paper on the subject to which I refer those desiring more detailed information.

In the early part of the war there was announced a French proprietary remedy for the treatment of burns. It was called "Ambrine." This remedy proved so successful that it commanded general attention. It was wax-like and when melted and applied to wounds or burns formed an air-tight covering under which the wound healed rapidly. Experiments were made to determine to what particular property or ingredient the remarkable healing qualities of the preparation were due. It was finally found that when hard paraffin was heated to $130^{\circ}\text{C}.$ by the aid of superheated steam the resulting product has a somewhat lower melting point than the paraffin originally used and that it had properties similar to those of ambrine. It is now universally accepted that ambrine owes its efficacy to the hard paraffin and not to any resin or oil of amber which are claimed to be present. Further investigations showed that it was essential to use a paraffin of suitable melting point and ductility. In the *Journal of the American Medical Association*, 1917, 69, 1525, are outlined the requirements for paraffin for film treatment. The paraffin must be more pliable and ductile than the U. S. P. kind. It must be liquid at $50^{\circ}\text{C}.$, pliable at or below $28^{\circ}\text{C}.$ and ductile at or below $31^{\circ}\text{C}.$ It should readily adhere to the skin but permit of ready detachment from it. From these considerations has resulted the so-called paraffin treatment of wounds, which is, briefly, the following: The burn is first washed with clean water and dried, a layer of melted paraffin is painted on and covered with a layer of cotton; a second coat of paraffin is now applied and the whole covered with wool and a bandage. The dressing must be changed every day.

A number of modifications have been proposed. One is to use liquid paraffin for the first coat on the wound. This tends to make the application practically painless, for it was found that hard melted paraffin applied to a burn occasioned considerable pain. Another modification consists in the addition of

certain substances to the paraffin to enhance its action. Sollman recommends the addition of $\frac{1}{2}$ percent of asphalt, or of 10 percent of cacao butter or yellow vaseline, together with antiseptics such as resorein and eucalyptol. Hull, in the *British Medical Journal*, Dec. 15, '17, claims that it is best to use an antiseptic before applying the paraffin film. He recommends the use of Acriflavine, as a 1:1000 solution. The use of aniline dyes as antiseptics has increased of late, and their value as such is under investigation. We owe the suggestion that aniline dyes may be valuable antiseptics to Ehrlich, the inventor of Salvarsan. Flavine, or diamino-methyl-acridinium chloride, was originally prepared by Benda, a co-worker of Ehrlich. Browning and Gilmore called the attention of the profession to the powerful antiseptic action of this substance. The following dyes are in use as antiseptics: Brilliant green, Flavine, Acriflavine, Proflavine, Scarlet-Red. The question as to the real effectiveness of these dyes is still an open one. Extensive biological experiments are now in progress at the Middlesex Hospital, London, to determine their true value. From results announced it appears that Brilliant Green is about 3-4 times stronger than mercuric chloride, and that it is capable of killing organisms in as high a dilution as 1:30,000. Some of the formulas suggested by Lieutenant Colonel Hull are as follows:

No. 10 Red.

| | |
|------------------------|--------|
| Scarlet-Red..... | 0.20% |
| Oil of Eucalyptus..... | 2.00% |
| Olive Oil..... | 5.00% |
| Hydrous Woolfat..... | 4.00% |
| Paraffin, soft..... | 21.00% |
| Paraffin, hard..... | 67.80% |

No. 13 Flavine Wax.

| | |
|------------------------|--------|
| Flavine..... | 0.20% |
| Oil of Eucalyptus..... | 2.00% |
| Olive Oil..... | 5.00% |
| Hydrous Woolfat..... | 4.00% |
| Paraffin, soft..... | 21.00% |
| Paraffin, hard..... | 67.80% |

No. 12.

| | |
|------------------------|--------|
| Brilliant Green..... | 0.05% |
| Oil of Eucalyptus..... | 2.00% |
| Olive Oil..... | 5.00% |
| Hydrous Woolfat..... | 4.00% |
| Paraffin, soft..... | 21.00% |
| Paraffin, hard..... | 67.95% |

No. 14.

| | |
|------------------------|--------|
| Dichloramine T..... | 0.20% |
| Oil of Eucalyptus..... | 2.00% |
| Olive Oil..... | 5.00% |
| Paraffin, soft..... | 25.00% |
| Paraffin, hard..... | 67.80% |

The dye is rubbed with the hydrous woolfat until thoroughly mixed, using about $\frac{1}{2}$ ounce of water to assist the solution of the dye. Melt the hard paraffin, add the liquid paraffin and the olive oil. When the temperature of the mixture is at 50° C., add the lanolin-dye paste, stirring until thoroughly mixed. Lastly add the oil of eucalyptus and stir until cold.

We have reviewed, briefly, Dakin Solution, Bipp Paste, Dichloramine, Ambrine-like preparations, aniline dyes as antiseptics. All have come into extensive use during the war. Let us hope that at least some of them will prove to be of inestimable value to man. Let us also call attention to the fact that much research work remains still to be done on these preparations, especially along pharmaceutical lines. Physicians and chemists have taken the lead in creating and applying these new substances. Will the pharmacist rise to the occasion and endeavor to present them to the medical profession in the form of new and elegant and compatible pharmaceuticals? It is my hope and expectation that he will do so!

A REPORT ON DAKIN'S SOLUTION.*

BY IRWIN A. BECKER.

It was the original intention to save a portion of a number of 10-liter lots of Dakin's solution, Daufresne formula, so as to represent, fairly, a period of six months; then to determine to what extent deterioration had taken place.

The results here presented cover a longer period on these same samples, and include several forms of hypochlorite solution for comparison.

Dakin's solution, after the boric acid formula, in 10-liter quantities, was first made by me in August, 1916, following directions carefully, and again in November, 1916.

These solutions were not assayed at the time of making, nor during their using, but samples of the last portions of each were set aside in well-filled, corked, 8-oz. bottles, in a dark cupboard of uniform medium temperature.

The same storing conditions obtained for all samples reported.

Being advised that it was intended to use Dakin's Solution freely, and that it should be made after the Daufresne technique, 10-liter lots were made every 8 to 14 days.

The chlorinated lime was assayed each time before using, and the quantities calculated on the basis of the assay. Ordinary crystal sodium carbonate was used instead of the anhydrous, in the proportion of 2.7 to 1, this factor being calculated from the molecular weights of these salts, respectively.

The chlorinated lime assay was made by a modified form of the method illustrated in Coblentz's Volumetric Analysis, First Edition, page 137-138, under "Chlorinated Lime."

The modifications consisting of using two mils glacial acetic acid instead of hydrochloric acid, and macerating the lime at least two hours, if possible, in a closely stoppered flask, then straining through cotton, the number of mils N/10 thiosulphate consumed equalling the number of percents of available chlorine.

The finished product was assayed in each case and the assay recorded in mils of N/10 thiosulphate V. S. At first, the assays of the finished product were stated in terms of available chlorine, but all have been converted into terms of sodium hypochlorite. All assays were made with the same apparatus, such as burettes, graduates, flasks, etc.

One hundred mils Dakin's Solution containing from 0.45 Gm. to 0.50 Gm. hypochlorite require from 120.8 to 134.3 mils N/10 sodium thiosulphate V. S.; 10 mils require from 12.08 to 13.43 mils volumetric thiosulphate. For convenience 10 mils were taken for assay excepting in one instance, when 5 mils only were used, and of the concentrated solutions 1 mil was used and the result multiplied by 10 to compare with Dakin's Solution.

The details of the assays on the various samples and remarks on modifying conditions are set forth in the following table:

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Chicago meeting, 1918.

| Sample, and date of manufacture. | Date of, and original assay. | Assay 7/5/17. | Loss percent. | Assay 7/18. | Loss percent from original | Remarks |
|----------------------------------------|---------------------------------|------------------|------------------|----------------|-------------------------------|----------------------------------------------------------------------------------------------------|
| A ¹ | ... | ... | .. | 0.444 | .. | Boric acid formula, slightly alkaline to phenol- phthalein. |
| A ² | 0.706 | 0.614 | 13.4% | 0.433 | 39.6% | Boric acid formula, cork good, bleached. |
| 11/16 | 1/5/17 | | | | | |
| A ³ | 0.54 | ... | .. | 0.349 | 36.4% | Boric acid formula, diluted to be about 0.5%, amber g. s. b. |
| 11/16 | 1/5/17 | | | | | |
| B..... | 0.515 | 0.49 | 5.6% | 0.495 | 21.4% | Dakin's, cork good, bleached. |
| 1/5/17 | 1/5/17 | | | | | |
| C..... | 0.506 | 0.428 | 15.4% | 0.273 | 46.0% | Dakin's, cork porous and decidedly bleached. |
| 3/12/17 | 3/12/17 | | | | | |
| D..... | 0.513 | 0.465 | 9.4% | 0.322 | 37.0% | Dakin's, cork very poor, bleached. |
| 3/22/17 | 3/22/17 | | | | | |
| E..... | 0.462 | 0.462 | 0.0% | (Sample lost) | | Dakin's, 10 days, hot weather. No loss. |
| 6/25/17 | 6/25/17 | | | | | |
| F..... | ... | 0.53 | (Sample lost) | | | Dakin's, fresh lot. |
| 7/5/17 | | | | | | |
| G ¹ | ... | .. | .. | 0.348×10 | 55% | Commercial brand, assay as per label, 7.7% NaOCl. |
| (Rec'd 3/16) | | | | | | |
| G ² | ... | ... | .. | 0.500×10 | | Commercial brand, received a few days before assay- ing, assay as per label, 4.05% NaOCl. |
| (Rec'd 7/18) | | | | | | |

Ordinary care only was exercised with stoppers, as some corks were better than others. It will be seen from the table that where the sample was well stoppered it did not fall below the lower limit of variation permissible, in six months.

The commercial, so-called stabilized, product lost strength, apparently, at about the same rate as Dakin's Solution, Daufresne formula.

THE USE OF LOGARITHMS AND ANTILOGARITHMS IN PHARMACEUTICAL ASSAYING.*

BY H. L. THOMPSON.

It has been my experience in teaching the subject of pharmaceutical assaying that one of the most difficult, tedious and nerve-racking parts of it is the performance of the mathematical calculations involved. As a result, I have attempted to instruct my students in the use of logarithms and antilogarithms, and after six years of such performance, there have resulted the following facts:

1st. As far as accuracy, the results obtained by using logarithms and antilogarithms is 0.01%, and that is considerably beyond the average accuracy in practice.

2nd. The time and labor saved by the use of logarithms and antilogarithms is about one-tenth or less than that used by the method of ratio and proportion, and the multiplication and long division of three or four decimal figures out to the third or fourth decimal place as required in determining strengths of drugs, chemicals and their preparations.

* Contributed to Section on Practical Pharmacy and Dispensing, A. Ph. A., Chicago meeting, 1918

3rd. The continual use of logarithms and antilogarithms has brought forth five general formulas, two for standardizing volumetric solutions, two for volumetric assay, and one for gravimetric and electrolytic assay.

Just what are logarithms and antilogarithms can not be explained in a better way than to first define a logarithm and an antilogarithm, show a logarithm table and an antilogarithm table, and then explain their use.

(If one is fully acquainted with the use of logarithms and antilogarithms, the following paragraphs may be omitted, and the use of the general standardization formulas and general assay formulas may be considered. See paragraph, Explanation of terms used in the formulas.)

LOGARITHM OF A NUMBER.

Let "a" be a certain fixed number, "n" any other number, and let "x" represent the exponent of "a" required to produce "n." Then "x" is the logarithm of "n" to the base "a."

As equations: if $a^x = n$; then $x = \log_a n$.

Hereafter are given some very simple tables of logarithms.

| No. | Logarithm Base = 2. | n. | $\log_{10} n$. | n | $\log_{10} n$ |
|------|------------------------|---------|-----------------|---|---------------|
| 1/16 | -4 | 0.0001 | -4 | 1 | 0.0000 |
| 1/8 | -3 | 0.001 | -3 | 2 | 0.3010 |
| 1/4 | -2 | 0.01 | -2 | 3 | 0.4771 |
| 1/2 | -1 | 0.1 | -1 | 4 | 0.6021 |
| 1 | 0 | 1.0 | 0 | 5 | 0.6990 |
| 2 | 1 | 10.0 | 1 | 6 | 0.7782 |
| 4 | 2 | 100.0 | 2 | 7 | 0.8451 |
| 8 | 3 | 1000.0 | 3 | 8 | 0.9031 |
| 16 | 4 | 10000.0 | 4 | 9 | 0.9542 |

LAWS OF OPERATIONS WITH LOGARITHMS.

Since a logarithm is an exponent, the laws of operation for logarithms are the same as those for exponents.

Let "x" be the logarithm of "m," "y" that of "n," the base being "a."

Then $\log_a m = x$; or $a^x = m$;

$\log_a n = y$; or $a^y = n$.

Hence $mn = a^{x+y}$ and $m/n = a^{x-y}$;

or $\log_a mn = x + y = \log_a m + \log_a n$;

and $\log_a m/n = x - y = \log_a m - \log_a n$.

We have therefore the rules:

I. The logarithm of a product equals the sum of the logarithm of the factors.

II. The logarithm of a fraction equals the logarithm of the numerator minus the logarithm of the denominator.

Also, if as before,

$\log_a m = x$, so that $m = a^x$;

then, if p and q be any real numbers,

$m^p = a^{px}$ and $m/q = a^{x/q}$.

Hence $\log_a m^p = px = p \log_a m$;

and $\log_a m = x/q = 1/q \log_a m$.

There are therefore two additional rules:

III. The logarithm of any power of a number equals the exponent of the power times the logarithm of the number.

IV. The logarithm of any root of number equals the logarithms of the number divided by the index of the root.

(Rule III contains Rule IV, since the power in question may be fractional.)

The following facts regarding logarithms should also be carefully noted:

(a) In any system the logarithm of the base is 1; for $a^1 = a$. Therefore $\log_a a = 1$.

(b) In any system the logarithm of 1 is 0; for $a^0 = 1$. Therefore $\log_a 1 = 0$.

(c) In any system whose base is greater than unity, the logarithm of 0 is $-\infty$. For if $a^x = m$, and $a > 1$, then if x is a large negative number m will be small. As x increases indefinitely, always being negative, m approaches zero. That is, $a^{-\infty} = 0$; if $a > 1$. Therefore $\log_a 0 = -\infty$.

(d) A negative number has no (real) logarithm, the base being positive.

(e) As a number varies from 0 to $+\infty$, its logarithm varies from $-\infty$ to $+\infty$, the base being greater than 1.

When the number is greater than 1, its logarithm is positive, and when the number is less than 1, its logarithm is negative.

A photo of Logarithms of Numbers and Antilogarithms accompanies this article.

EXPLANATION OF THE TABLES AND THEIR USE.

Logarithms of Numbers.—This table gives the decimal part, or mantissa, of the logarithms of every positive number containing not more than three significant figures. The mantissas of the logarithms of numbers containing more than three significant figures are to be obtained by interpolation or the use of the proportional parts. The integral part, or characteristics, of the logarithm must be supplied by the computer, according to the position of the decimal point in the number.

RULES FOR CHARACTERISTICS.

(a) When a number has " n " significant figures to the left of the decimal point, the characteristic of its logarithm is $n - 1$.

(b) When the number is a decimal with " n " ciphers between the decimal point and the first digit which is not zero, the characteristic of its logarithm is $9 - n$, and -10 must be supplied to complete the logarithm.

The reason for these rules will become evident when we consider an example.

Find $\log 631$. In the table find 63 in the left hand column and run across the page horizontally to the column headed one. There we find that the mantissa of $\log 631 = 0.8000$.

Now 631 lies between 100 and 1000, *i. e.*, between 10^2 and 10^3 .

Hence, by definition of a logarithm, $\log 631$ must lie between 2 and 3.

Therefore the characteristic is 2, and $\log 631 = 2.8000$.

This, of course, is not the exact logarithm of 631, but only its value to four decimal places.

Writing the last equation in exponential form, we have

$$631 = 10^{2.8000}.$$

Multiplying both sides by 10, $6310 = 10 \times 10^{2.8000} = 10^{3.8000}$

Hence, $\log 6310 = 3.8000$.

Multiplying again by 10, $63100 = 10 \times 10^{3.8000} = 10^{4.8000}$. Hence $\log 63100 = 4.8000$. Therefore, when a number is multiplied by 10, the characteristic of its logarithm is increased by 1; the mantissa remains unchanged.

Dividing the above equations successively by 10, we obtain

$$\begin{aligned} 63.1 &= 10^{2.8000} \div 10 = 10^{1.8000} \\ 6.31 &= 10^{1.8000} \div 10 = 10^{0.8000} \\ 0.631 &= 10^{0.8000} \div 10 = 10^{0.8000-1} \\ 0.0631 &= 10^{0.8000-1} \div 10 = 10^{0.8000-2} \\ 0.00631 &= 10^{0.8000-2} \div 10 = 10^{0.8000-3} \text{ and so on.} \end{aligned}$$

As logarithmic equations these are:

$$\begin{aligned} \log 63.1 &= 1.8000 \\ 6.31 &= 0.8000 \\ 0.631 &= 0.8000 - 1 = 9.8000 - 10 \\ 0.0631 &= 0.8000 - 2 = 8.8000 - 10 \\ 0.00631 &= 0.8000 - 3 = 7.8000 - 10, \text{ and so on.} \end{aligned}$$

The second form of the last three equations is used for convenience in computations; it is in accordance with Rule *b*.

LOGARITHMS OF NUMBERS

| N | PROPORTIONAL PARTS | | | | | | | | | |
|----|--------------------|------|------|------|------|------|------|------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 00 | 0000 | 0001 | 0002 | 0003 | 0004 | 0005 | 0006 | 0007 | 0008 | 0009 |
| 01 | 0010 | 0011 | 0012 | 0013 | 0014 | 0015 | 0016 | 0017 | 0018 | 0019 |
| 02 | 0020 | 0021 | 0022 | 0023 | 0024 | 0025 | 0026 | 0027 | 0028 | 0029 |
| 03 | 0030 | 0031 | 0032 | 0033 | 0034 | 0035 | 0036 | 0037 | 0038 | 0039 |
| 04 | 0040 | 0041 | 0042 | 0043 | 0044 | 0045 | 0046 | 0047 | 0048 | 0049 |
| 05 | 0050 | 0051 | 0052 | 0053 | 0054 | 0055 | 0056 | 0057 | 0058 | 0059 |
| 06 | 0060 | 0061 | 0062 | 0063 | 0064 | 0065 | 0066 | 0067 | 0068 | 0069 |
| 07 | 0070 | 0071 | 0072 | 0073 | 0074 | 0075 | 0076 | 0077 | 0078 | 0079 |
| 08 | 0080 | 0081 | 0082 | 0083 | 0084 | 0085 | 0086 | 0087 | 0088 | 0089 |
| 09 | 0090 | 0091 | 0092 | 0093 | 0094 | 0095 | 0096 | 0097 | 0098 | 0099 |
| 10 | 0100 | 0101 | 0102 | 0103 | 0104 | 0105 | 0106 | 0107 | 0108 | 0109 |
| 11 | 0110 | 0111 | 0112 | 0113 | 0114 | 0115 | 0116 | 0117 | 0118 | 0119 |
| 12 | 0120 | 0121 | 0122 | 0123 | 0124 | 0125 | 0126 | 0127 | 0128 | 0129 |
| 13 | 0130 | 0131 | 0132 | 0133 | 0134 | 0135 | 0136 | 0137 | 0138 | 0139 |
| 14 | 0140 | 0141 | 0142 | 0143 | 0144 | 0145 | 0146 | 0147 | 0148 | 0149 |
| 15 | 0150 | 0151 | 0152 | 0153 | 0154 | 0155 | 0156 | 0157 | 0158 | 0159 |
| 16 | 0160 | 0161 | 0162 | 0163 | 0164 | 0165 | 0166 | 0167 | 0168 | 0169 |
| 17 | 0170 | 0171 | 0172 | 0173 | 0174 | 0175 | 0176 | 0177 | 0178 | 0179 |
| 18 | 0180 | 0181 | 0182 | 0183 | 0184 | 0185 | 0186 | 0187 | 0188 | 0189 |
| 19 | 0190 | 0191 | 0192 | 0193 | 0194 | 0195 | 0196 | 0197 | 0198 | 0199 |
| 20 | 0200 | 0201 | 0202 | 0203 | 0204 | 0205 | 0206 | 0207 | 0208 | 0209 |
| 21 | 0210 | 0211 | 0212 | 0213 | 0214 | 0215 | 0216 | 0217 | 0218 | 0219 |
| 22 | 0220 | 0221 | 0222 | 0223 | 0224 | 0225 | 0226 | 0227 | 0228 | 0229 |
| 23 | 0230 | 0231 | 0232 | 0233 | 0234 | 0235 | 0236 | 0237 | 0238 | 0239 |
| 24 | 0240 | 0241 | 0242 | 0243 | 0244 | 0245 | 0246 | 0247 | 0248 | 0249 |
| 25 | 0250 | 0251 | 0252 | 0253 | 0254 | 0255 | 0256 | 0257 | 0258 | 0259 |
| 26 | 0260 | 0261 | 0262 | 0263 | 0264 | 0265 | 0266 | 0267 | 0268 | 0269 |
| 27 | 0270 | 0271 | 0272 | 0273 | 0274 | 0275 | 0276 | 0277 | 0278 | 0279 |
| 28 | 0280 | 0281 | 0282 | 0283 | 0284 | 0285 | 0286 | 0287 | 0288 | 0289 |
| 29 | 0290 | 0291 | 0292 | 0293 | 0294 | 0295 | 0296 | 0297 | 0298 | 0299 |
| 30 | 0300 | 0301 | 0302 | 0303 | 0304 | 0305 | 0306 | 0307 | 0308 | 0309 |
| 31 | 0310 | 0311 | 0312 | 0313 | 0314 | 0315 | 0316 | 0317 | 0318 | 0319 |
| 32 | 0320 | 0321 | 0322 | 0323 | 0324 | 0325 | 0326 | 0327 | 0328 | 0329 |
| 33 | 0330 | 0331 | 0332 | 0333 | 0334 | 0335 | 0336 | 0337 | 0338 | 0339 |
| 34 | 0340 | 0341 | 0342 | 0343 | 0344 | 0345 | 0346 | 0347 | 0348 | 0349 |
| 35 | 0350 | 0351 | 0352 | 0353 | 0354 | 0355 | 0356 | 0357 | 0358 | 0359 |
| 36 | 0360 | 0361 | 0362 | 0363 | 0364 | 0365 | 0366 | 0367 | 0368 | 0369 |
| 37 | 0370 | 0371 | 0372 | 0373 | 0374 | 0375 | 0376 | 0377 | 0378 | 0379 |
| 38 | 0380 | 0381 | 0382 | 0383 | 0384 | 0385 | 0386 | 0387 | 0388 | 0389 |
| 39 | 0390 | 0391 | 0392 | 0393 | 0394 | 0395 | 0396 | 0397 | 0398 | 0399 |
| 40 | 0400 | 0401 | 0402 | 0403 | 0404 | 0405 | 0406 | 0407 | 0408 | 0409 |
| 41 | 0410 | 0411 | 0412 | 0413 | 0414 | 0415 | 0416 | 0417 | 0418 | 0419 |
| 42 | 0420 | 0421 | 0422 | 0423 | 0424 | 0425 | 0426 | 0427 | 0428 | 0429 |
| 43 | 0430 | 0431 | 0432 | 0433 | 0434 | 0435 | 0436 | 0437 | 0438 | 0439 |
| 44 | 0440 | 0441 | 0442 | 0443 | 0444 | 0445 | 0446 | 0447 | 0448 | 0449 |
| 45 | 0450 | 0451 | 0452 | 0453 | 0454 | 0455 | 0456 | 0457 | 0458 | 0459 |
| 46 | 0460 | 0461 | 0462 | 0463 | 0464 | 0465 | 0466 | 0467 | 0468 | 0469 |
| 47 | 0470 | 0471 | 0472 | 0473 | 0474 | 0475 | 0476 | 0477 | 0478 | 0479 |
| 48 | 0480 | 0481 | 0482 | 0483 | 0484 | 0485 | 0486 | 0487 | 0488 | 0489 |
| 49 | 0490 | 0491 | 0492 | 0493 | 0494 | 0495 | 0496 | 0497 | 0498 | 0499 |
| 50 | 0500 | 0501 | 0502 | 0503 | 0504 | 0505 | 0506 | 0507 | 0508 | 0509 |
| 51 | 0510 | 0511 | 0512 | 0513 | 0514 | 0515 | 0516 | 0517 | 0518 | 0519 |
| 52 | 0520 | 0521 | 0522 | 0523 | 0524 | 0525 | 0526 | 0527 | 0528 | 0529 |
| 53 | 0530 | 0531 | 0532 | 0533 | 0534 | 0535 | 0536 | 0537 | 0538 | 0539 |
| 54 | 0540 | 0541 | 0542 | 0543 | 0544 | 0545 | 0546 | 0547 | 0548 | 0549 |
| 55 | 0550 | 0551 | 0552 | 0553 | 0554 | 0555 | 0556 | 0557 | 0558 | 0559 |
| 56 | 0560 | 0561 | 0562 | 0563 | 0564 | 0565 | 0566 | 0567 | 0568 | 0569 |
| 57 | 0570 | 0571 | 0572 | 0573 | 0574 | 0575 | 0576 | 0577 | 0578 | 0579 |
| 58 | 0580 | 0581 | 0582 | 0583 | 0584 | 0585 | 0586 | 0587 | 0588 | 0589 |
| 59 | 0590 | 0591 | 0592 | 0593 | 0594 | 0595 | 0596 | 0597 | 0598 | 0599 |
| 60 | 0600 | 0601 | 0602 | 0603 | 0604 | 0605 | 0606 | 0607 | 0608 | 0609 |
| 61 | 0610 | 0611 | 0612 | 0613 | 0614 | 0615 | 0616 | 0617 | 0618 | 0619 |
| 62 | 0620 | 0621 | 0622 | 0623 | 0624 | 0625 | 0626 | 0627 | 0628 | 0629 |
| 63 | 0630 | 0631 | 0632 | 0633 | 0634 | 0635 | 0636 | 0637 | 0638 | 0639 |
| 64 | 0640 | 0641 | 0642 | 0643 | 0644 | 0645 | 0646 | 0647 | 0648 | 0649 |
| 65 | 0650 | 0651 | 0652 | 0653 | 0654 | 0655 | 0656 | 0657 | 0658 | 0659 |
| 66 | 0660 | 0661 | 0662 | 0663 | 0664 | 0665 | 0666 | 0667 | 0668 | 0669 |
| 67 | 0670 | 0671 | 0672 | 0673 | 0674 | 0675 | 0676 | 0677 | 0678 | 0679 |
| 68 | 0680 | 0681 | 0682 | 0683 | 0684 | 0685 | 0686 | 0687 | 0688 | 0689 |
| 69 | 0690 | 0691 | 0692 | 0693 | 0694 | 0695 | 0696 | 0697 | 0698 | 0699 |
| 70 | 0700 | 0701 | 0702 | 0703 | 0704 | 0705 | 0706 | 0707 | 0708 | 0709 |
| 71 | 0710 | 0711 | 0712 | 0713 | 0714 | 0715 | 0716 | 0717 | 0718 | 0719 |
| 72 | 0720 | 0721 | 0722 | 0723 | 0724 | 0725 | 0726 | 0727 | 0728 | 0729 |
| 73 | 0730 | 0731 | 0732 | 0733 | 0734 | 0735 | 0736 | 0737 | 0738 | 0739 |
| 74 | 0740 | 0741 | 0742 | 0743 | 0744 | 0745 | 0746 | 0747 | 0748 | 0749 |
| 75 | 0750 | 0751 | 0752 | 0753 | 0754 | 0755 | 0756 | 0757 | 0758 | 0759 |
| 76 | 0760 | 0761 | 0762 | 0763 | 0764 | 0765 | 0766 | 0767 | 0768 | 0769 |
| 77 | 0770 | 0771 | 0772 | 0773 | 0774 | 0775 | 0776 | 0777 | 0778 | 0779 |
| 78 | 0780 | 0781 | 0782 | 0783 | 0784 | 0785 | 0786 | 0787 | 0788 | 0789 |
| 79 | 0790 | 0791 | 0792 | 0793 | 0794 | 0795 | 0796 | 0797 | 0798 | 0799 |
| 80 | 0800 | 0801 | 0802 | 0803 | 0804 | 0805 | 0806 | 0807 | 0808 | 0809 |
| 81 | 0810 | 0811 | 0812 | 0813 | 0814 | 0815 | 0816 | 0817 | 0818 | 0819 |
| 82 | 0820 | 0821 | 0822 | 0823 | 0824 | 0825 | 0826 | 0827 | 0828 | 0829 |
| 83 | 0830 | 0831 | 0832 | 0833 | 0834 | 0835 | 0836 | 0837 | 0838 | 0839 |
| 84 | 0840 | 0841 | 0842 | 0843 | 0844 | 0845 | 0846 | 0847 | 0848 | 0849 |
| 85 | 0850 | 0851 | 0852 | 0853 | 0854 | 0855 | 0856 | 0857 | 0858 | 0859 |
| 86 | 0860 | 0861 | 0862 | 0863 | 0864 | 0865 | 0866 | 0867 | 0868 | 0869 |
| 87 | 0870 | 0871 | 0872 | 0873 | 0874 | 0875 | 0876 | 0877 | 0878 | 0879 |
| 88 | 0880 | 0881 | 0882 | 0883 | 0884 | 0885 | 0886 | 0887 | 0888 | 0889 |
| 89 | 0890 | 0891 | 0892 | 0893 | 0894 | 0895 | 0896 | 0897 | 0898 | 0899 |
| 90 | 0900 | 0901 | 0902 | 0903 | 0904 | 0905 | 0906 | 0907 | 0908 | 0909 |
| 91 | 0910 | 0911 | 0912 | 0913 | 0914 | 0915 | 0916 | 0917 | 0918 | 0919 |
| 92 | 0920 | 0921 | 0922 | 0923 | 0924 | 0925 | 0926 | 0927 | 0928 | 0929 |
| 93 | 0930 | 0931 | 0932 | 0933 | 0934 | 0935 | 0936 | 0937 | 0938 | 0939 |
| 94 | 0940 | 0941 | 0942 | 0943 | 0944 | 0945 | 0946 | 0947 | 0948 | 0949 |
| 95 | 0950 | 0951 | 0952 | 0953 | 0954 | 0955 | 0956 | 0957 | 0958 | 0959 |
| 96 | 0960 | 0961 | 0962 | 0963 | 0964 | 0965 | 0966 | 0967 | 0968 | 0969 |
| 97 | 0970 | 0971 | 0972 | 0973 | 0974 | 0975 | 0976 | 0977 | 0978 | 0979 |
| 98 | 0980 | 0981 | 0982 | 0983 | 0984 | 0985 | 0986 | 0987 | 0988 | 0989 |
| 99 | 0990 | 0991 | 0992 | 0993 | 0994 | 0995 | 0996 | 0997 | 0998 | 0999 |

LOGARITHMS OF NUMBERS

| N | PROPORTIONAL PARTS | | | | | | | | | |
|----|--------------------|------|------|------|------|------|------|------|------|------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 00 | 0000 | 0001 | 0002 | 0003 | 0004 | 0005 | 0006 | 0007 | 0008 | 0009 |
| 01 | 0010 | 0011 | 0012 | 0013 | 0014 | 0015 | 0016 | 0017 | 0018 | 0019 |
| 02 | 0020 | 0021 | 0022 | 0023 | 0024 | 0025 | 0026 | 0027 | 0028 | 0029 |
| 03 | 0030 | 0031 | 0032 | 0033 | 0034 | 0035 | 0036 | 0037 | 0038 | 0039 |
| 04 | 0040 | 0041 | 0042 | 0043 | 0044 | 0045 | 0046 | 0047 | 0048 | 0049 |
| 05 | 0050 | 0051 | 0052 | 0053 | 0054 | 0055 | 0056 | 0057 | 0058 | 0059 |
| 06 | 0060 | 0061 | 0062 | 0063 | 0064 | 0065 | 0066 | 0067 | 0068 | 0069 |
| 07 | 0070 | 0071 | 0072 | 0073 | 0074 | 0075 | 0076 | 0077 | 0078 | 0079 |
| 08 | 0080 | 0081 | 0082 | 0083 | 0084 | 0085 | 0086 | 0087 | 0088 | 0089 |
| 09 | 0090 | 0091 | 0092 | 0093 | 0094 | 0095 | 0096 | 0097 | 0098 | 0099 |
| 10 | 0100 | 0101 | 0102 | 0103 | 0104 | 0105 | 0106 | 0107 | 0108 | 0109 |
| 11 | 0110 | 0111 | 0112 | 0113 | 0114 | 0115 | 0116 | 0117 | 0118 | 0119 |
| 12 | 0120 | 0121 | 0122 | 0123 | 0124 | 0125 | 0126 | 0127 | 0128 | 0129 |
| 13 | 0130 | 0131 | 0132 | 0133 | 0134 | 0135 | 0136 | 0137 | 0138 | 0139 |
| 14 | 0140 | 0141 | 0142 | 0143 | 0144 | 0145 | 0146 | 0147 | 0148 | 0149 |
| 15 | 0150 | 0151 | 0152 | 0153 | 0154 | 0155 | 0156 | 0157 | 0158 | 0159 |
| 16 | 0160 | 0161 | 0162 | 0163 | 0164 | 0165 | 0166 | 0167 | 0168 | 0169 |
| 17 | 0170 | 0171 | 0172 | 0173 | 0174 | 0175 | 0176 | 0177 | 0178 | 0179 |
| 18 | 0180 | 0181 | 0182 | 0183 | 0184 | 0185 | 0186 | 0187 | 0188 | 0189 |
| 19 | 0190 | 0191 | 0192 | 0193 | 0194 | 0195 | 0196 | 0197 | 0198 | 0199 |
| 20 | 0200 | 0201 | 0202 | 0203 | 0204 | 0205 | 0206 | 0207 | 0208 | 0209 |
| 21 | 0210 | 0211 | 0212 | 0213 | 0214 | 0215 | 0216 | 0217 | 0218 | 0219 |
| 22 | 0220 | 0221 | 0222 | 0223 | 0224 | 0225 | 0226 | 0227 | 0228 | 0229 |
| 23 | 0230 | 0231 | 0232 | 0233 | 0234 | 0235 | 0236 | 0237 | 0238 | 0239 |
| 24 | 0240 | 0241 | 0242 | 0243 | 0244 | 0245 | 0246 | 0247 | 0248 | 0249 |
| 25 | 0250 | 0251 | 0252 | 0253 | 0254 | 0255 | 0256 | 0257 | 0258 | 0259 |
| 26 | 0260 | 0261 | 0262 | 0263 | 0264 | 0265 | 0266 | 0267 | 0268 | 0269 |
| 27 | 0270 | 0271 | 0272 | 0273 | 0274 | 0275 | 0276 | 0277 | 0278 | 0279 |
| 28 | 0280 | 0281 | 0282 | 0283 | 0284 | 0285 | 0286 | 0287 | 0288 | 0289 |
| 29 | 0290 | 0291 | 0292 | 0293 | 0294 | 0295 | 0296 | 0297 | 0298 | 0299 |
| 30 | 0300 | 0301 | 0302 | 0303 | 0304 | 0305 | 0306 | 0307 | 0308 | 0309 |
| 31 | 0310 | 0311 | 0312 | 0313 | 0314 | 0315 | 0316 | 0317 | 0318 | 0319 |
| 32 | 0320 | 0321 | 0322 | 0323 | 0324 | 0325 | 0326 | 0327 | 0328 | 0329 |
| 33 | 0330 | 0331 | 0332 | 0333 | 0334 | 0335 | 0336 | 0337 | 0338 | 0339 |
| 34 | 0340 | 0341 | 0342 | 0343 | 0344 | 0345 | 0346 | 0347 | 0348 | 0349 |
| 35 | 0350 | 0351 | 0352 | 0353 | 0354 | 0355 | 0356 | 0357 | 0358 | 0359 |
| 36 | 0360 | 0361 | 0362 | 0363 | 0364 | 0365 | 0366 | 0367 | 0368 | 0369 |
| 37 | 0370 | 0371 | 0372 | 0373 | 0374 | 0375 | 0376 | 0377 | 0378 | 0379 |
| 38 | 0380 | 0381 | 0382 | 0383 | 0384 | 0385 | 0386 | 0387 | 0388 | 0389 |
| 39 | 0390 | 0391 | 0392 | 0393 | 0394 | 0395 | 0396 | 0397 | 0398 | 0399 |
| 40 | 0400 | 0401 | 0402 | 0403 | 0404 | 0405 | 0406 | 0407 | 0408 | 0409 |
| 41 | 0410 | 0411 | 0412 | 0413 | 0414 | 0415 | 0416 | 0417 | 0418 | 0419 |
| 42 | 0420 | 0421 | 0422 | 0423 | 0424 | 0425 | 0426 | 0427 | 0428 | 0429 |
| 43 | 0430 | 0431 | 0432 | 0433 | 0434 | 0435 | 0436 | 0437 | 0438 | 0439 |
| 44 | 0440 | 0441 | 0442 | 0443 | 0444 | 0445 | 0446 | 0447 | 0448 | 0449 |
| 45 | 0450 | 0451 | 0452 | 0453 | 0454 | 0455 | 0456 | 0457 | 0458 | 0459 |
| 46 | 0460 | 0461 | 0462 | 0463 | 0464 | 0465 | 0466 | 0467 | 0468 | 0469 |
| 47 | 0470 | 0471 | 0472 | 0473 | 0474 | 0475 | 0476 | 0477 | 0478 | 0479 |
| 48 | 0480 | 0481 | 0482 | 0483 | 0484 | 0485 | 0486 | 0487 | 0488 | 0489 |
| 49 | 0490 | 0491 | 0492 | 0493 | 0494 | 0495 | 0496 | 0497 | 0498 | 0499 |
| 50 | 0500 | 0501 | 0502 | 0503 | 0504 | 0505 | 0506 | 0507 | 0508 | 0509 |
| 51 | 0510 | 0511 | 0512 | 0513 | 0514 | 0515 | 0516 | 0517 | 0518 | 0519 |
| 52 | 0520 | 0521 | 0522 | 0523 | 0524 | 0525 | 0526 | 0527 | 0528 | 0529 |
| 53 | 0530 | 0531 | 0532 | 0533 | 0534 | 0535 | 0536 | 0537 | 0538 | 0539 |
| 54 | 0540 | 0541 | 0542 | 0543 | 0544 | 0545 | 0546 | 0547 | 0548 | 0549 |
| 55 | 0550 | 0551 | 0552 | 0553 | 0554 | 0555 | 0556 | 0557 | 0558 | 0559 |
| 56 | 0560 | 0561 | 0562 | 0563 | 0564 | 0565 | 0566 | 0567 | 0568 | 0569 |
| 57 | 0570 | 0571 | 0572 | 0573 | 0574 | 0575 | 0576 | 0577 | 0578 | 0579 |
| 58 | 0580 | 0581 | 0582 | 0583 | 0584 | 0585 | 0586 | 0587 | 0588 | 0589 |
| 59 | 0590 | 0591 | 0592 | 0593 | 0594 | 0595 | 0596 | 0597 | 0598 | 0599 |
| 60 | 0600 | 0601 | 0602 | 0603 | 0604 | 0605 | 0606 | 0607 | 0608 | 0609 |
| 61 | 0610 | 0611 | 0612 | 0613 | 0614 | 0615 | 0616 | 0617 | 0618 | 0619 |
| 62 | 0620 | 0621 | 0622 | 0623 | 0624 | 0625 | 0626 | 0627 | 0628 | 0629 |
| 63 | 0630 | 0631 | 0632 | 0633 | 0634 | 0635 | 0636 | 0637 | 0638 | 0639 |
| 64 | 0640 | 0641 | 0642 | 0643 | 0644 | 0645 | 0646 | 0647 | 0648 | 0649 |
| 65 | 0650 | 0651 | 0652 | 0653 | 0654 | 0655 | 0656 | 0657 | 0658 | 0659 |
| 66 | 0660 | 0661 | 0662 | 0663 | 0664 | 0665 | 0666 | 0667 | 0668 | 0669 |
| 67 | 0670 | 0671 | 0672 | 0673 | 0674 | 0675 | 0676 | 0677 | 0678 | 0679 |
| 68 | 0680 | 0681 | 0682 | 0683 | 0684 | 0685 | 0686 | 0687 | 0688 | 0689 |
| 69 | 0690 | 0691 | 0692 | 0693 | 0694 | 0695 | 0696 | 0697 | 0698 | 0699 |
| 70 | 0700 | 0701 | 0702 | 0703 | 0704 | 0705 | 0706 | 0707 | 0708 | 0709 |
| 71 | 0710 | 0711 | 0712 | 0713 | 0714 | 0715 | 0716 | 0717 | 0718 | 0719 |
| 72 | 0720 | 0721 | 0722 | 0723 | 0724 | 0725 | 0726 | 0727 | 0728 | 0729 |
| 73 | 0730 | 0731 | 0732 | 0733 | 0734 | 0735 | 0736 | 0737 | 0738 | 0739 |
| 74 | 0740 | 0741 | 0742 | 0743 | 0744 | 0745 | 0746 | 0747 | 0748 | 0749 |
| 75 | 0750 | 0751 | 0752 | 0753 | 0754 | 0755 | 0756 | 0757 | 0758 | 0759 |
| 76 | 0760 | 0761 | 0762 | 0763 | 0764 | 0765 | 0766 | 0767 | 0768 | 0769 |
| 77 | 0770 | 0771 | 0772 | 0773 | 0774 | 0775 | 0776 | 0777 | 0778 | 0779 |
| 78 | 0780 | 0781 | 0782 | 0783 | 0784 | 0785 | 0786 | 0787 | 0788 | 0789 |
| 79 | 0790 | 0791 | 0792 | 0793 | 0794 | 0795 | 0796 | 0797 | 0798 | 0799 |
| 80 | 0800 | 0801 | 0802 | 0803 | 0804 | 0805 | 0806 | 0807 | 0808 | 0809 |
| 81 | 0810 | 0811 | 0812 | 0813 | 0814 | 0815 | 0816 | 0817 | 0818 | 0819 |
| 82 | 0820 | 0821 | 0822 | 0823 | 0824 | 0825 | 0826 | 0827 | 0828 | 0829 |
| 83 | 0830 | 0831 | 0832 | 0833 | 0834 | 0835 | 0836 | 0837 | 0838 | 0839 |
| 84 | 0840 | 0841 | 0842 | 0843 | 0844 | 0845 | 0846 | 0847 | 0848 | 0849 |
| 85 | 0850 | 0851 | 0852 | 0853 | 0854 | 0855 | 0856 | 0857 | 0858 | 0859 |
| 86 | 0860 | 0861 | 0862 | 0863 | 0864 | 0865 | 0866 | 0867 | 0868 | 0869 |
| 87 | 0870 | 0871 | 0872 | 0873 | 0874 | 0875 | 0876 | 0877 | 0878 | 0879 |
| 88 | 0880 | 0881 | 0882 | 0883 | 0884 | 0885 | 0886 | 0887 | 0888 | 0889 |
| 89 | 0890 | 0891 | 0892 | 0893 | 0894 | 0895 | 0896 | 0897 | 0898 | 0899 |
| 90 | 0900 | 0901 | 0902 | 0903 | 0904 | 0905 | 0906 | 0907 | 0908 | 0909 |
| 91 | 0910 | 0911 | 0912 | 0913 | 0914 | 0915 | 0916 | 0917 | 0918 | 0919 |
| 92 | 0920 | 0921 | 0922 | 0923 | 0924 | 0925 | 0926 | 0927 | 0928 | 0929 |
| 93 | 0930 | 0931 | 0932 | 0933 | 0934 | 0935 | 0936 | 0937 | 0938 | 0939 |
| 94 | 0940 | 0941 | 0942 | 0943 | 0944 | 0945 | 0946 | 0947 | 0948 | 0949 |
| 95 | 0950 | 0951 | 0952 | 0953 | 0954 | 0955 | 0956 | 0957 | 0958 | 0959 |
| 96 | 0960 | 0961 | 0962 | 0963 | 0964 | 0965 | 0966 | 0967 | 0968 | 0969 |
| 97 | 0970 | 0971 | 0972 | 0973 | 0974 | 0975 | 0976 | 0977 | 0978 | 0979 |
| 98 | 0980 | 0981 | 0982 | 0983 | 0984 | 0985 | 0986 | 0987 | 0988 | 0989 |
| 99 | 0990 | 0991 | 0992 | 0993 | 0994 | 0995 | 0996 | 0997 | 0998 | 0999 |

To discuss Rules *a* and *b* more generally, let "m" be any number. Then by the definition of a logarithm, when

| m lies between | log m lies between |
|--------------------|--------------------|
| (1) 1 and 10 | 0 and 1 |
| (2) 10 and 100 | 1 and 2 |
| (3) 100 and 1000 | 2 and 3 |
| (4) 1000 and 10000 | 3 and 4, and so on |

Therefore, when "m" has

- (1) 1 digit to the left of the decimal point, $\log m = 0 + \dots$
- (2) 2 digits to the left of the decimal point, $\log m = 1 + \dots$
- (3) 3 digits to the left of the decimal point, $\log m = 2 + \dots$
- (4) 4 digits to the left of the decimal point, $\log m = 3 + \dots$ and so on.

Hence Rule *a*.

In the case of decimal numbers,

| when m lies between | log m lies between |
|----------------------|-----------------------|
| (1) 1.0 and 0.1 | 0 and 1 -1 |
| (2) 0.1 and 0.01 | -1 and -2 |
| (3) 0.01 and 0.001 | -2 and -3 |
| (4) 0.001 and 0.0001 | -3 and -4 and so on. |

That is, when "m" is a decimal number in which

- (1) no cipher follows the decimal point, $\log m = 9 + \dots - 10$;
- (2) 1 cipher follows the decimal point, $\log m = 8 + \dots - 10$;
- (3) 2 ciphers follow the decimal point, $\log m = 7 + \dots - 10$;
- (4) 3 ciphers follow the decimal point, $\log m = 6 + \dots - 10$; and so on.

Hence Rule *b*.

INTERPOLATION.

Interpolation is the process of calculating numbers intermediate between those given in a table.

Find $\log 3784$.

From the table, mantissa of \log of 379 = 0.5786

From the table, mantissa of \log of 378 = 0.5775

0.0011 = difference.

Assuming that the increase in the logarithm is proportional to increase in the number, we have

mantissa of $\log 3784 = 0.5775 + 0.4 \times 0.0011 = 0.5779$.

The result here given to the nearest unit in the fourth decimal place 0.4×0.0011 being taken equal to 0.0004 in place of 0.00044.

PROPORTIONAL PARTS.

For convenience in interpolation, the tabular differences are subdivided into tenths and tabulated under the heading Proportional Parts. In the table given, it is the average of the differences given for the mantissas in one row across the page.

For the fourth figure, add the proportional part given under its column opposite the row of the first two significant figures to the mantissa of the first three significant figures. Thus:

$$\begin{array}{rcl}
 1. \quad \log 543.2 & = & ? \\
 \text{mantissa of } \log 543 & = & 0.7348 \\
 \text{prop. part for } 0.2 & = & \quad \quad 2 \\
 & & \hline
 \log 543.2 & = & 2.7350 \\
 2. \quad \log (251.9)^{2/3} & = & ? \\
 \text{mantissa of } \log 251 & = & 0.3997 \\
 \text{prop. part for } 0.9 & = & \quad \quad 15 \\
 & & \hline
 \log 251.9 & = & 2.4012 \\
 & & \hline
 & & 2 \\
 & & \hline
 & & 3)4.8024 \\
 & & \hline
 & & 1.6008
 \end{array}$$

Since $\log (251.9)^{2/3} = 2/3 \log 251.9$,

therefore, $\log (251.9)^{2/3} = 1.6008$,

or solving $(251.9)^{2/3} = 3.988+$.

3. $\log 0.07127 = ?$

mantissa of $\log 712 = 0.8525$

prop. part for 7 = 4

$\log 0.07127 = 8.8529 - 10$

4. $\log \sqrt[3]{0.08163} = ?$

$\sqrt[3]{(0.08163)} = (0.08163)^{1/3} = 1/3 \log (0.08163)$

mantissa of 816 = 0.9117

Prop. part of 3 = 2

$\log 0.08163 = 8.9119 - 10$

$4(8.9119 - 10) = 35.6456 - 40 = 25.6456 - 30$

$1/3(25.6456 - 30) = 8.5489 - 10$.

NOTE.—When a logarithm which is followed by -10 is to be divided by a number, add and subtract a multiple of ten so that the quotient will come out in a form followed by -10 .

Thus: $1/4 (8.244 - 10) = 1/4(38.2448 - 40) = 9.5612 - 10$.

ANTILOGARITHMS.

¶ The number whose logarithm is "x" is called the antilogarithm of "x." Thus, if $x = \log m$, then $m = \text{antilog } x$.

Given a logarithm, to obtain the corresponding number (antilogarithm).

1. $\log m = 0.4806$. $m = ?$

Find the first three figures in the mantissa in the antilog table similar to logarithm table only remember that zero in the mantissa before the other figures must be considered, and then add the proportional part of the fourth figure of the mantissa.

In the table of antilogarithms, find 0.48 in the left hand column and run across the page horizontally to the column headed 0. There we find that antilog of 0.480 = 3020. Add to this the proportional part under 6, which is 4. This makes the four figures 3024.

Now the characteristic tells how to place the decimal point counting from the left of the four figures, point off

1 place to the right for the characteristic 0

2 places to the right for the characteristic 1

3 places to the right for the characteristic 2

4 places to the right for the characteristic 3

If the characteristic is 9 — ... — 10 place decimal in front of figures.

If the characteristic is 8 — ... — 10 place decimal 1 place to the left.

If the characteristic is 7 — ... — 10 place decimal 2 places to left.

If the characteristic is 6 — ... — 10 place decimal 3 places to left.

2. $\log m = 7.0959 - 10$. $m = ?$

antilog 0.095 = 1245

prop. part 0 = 3

antilog 7.0959 — 10 = 0.001248

Sometimes there is a deficiency or excess of 1 in the fourth decimal, but in all pharmaceutical and chemical assaying, weighing, measuring, etc., if an accuracy of 0.1% is desired, the 4 place table will suffice, but if greater accuracy is desired the 5, 6 or the 10 place logarithms are needed. But for the most part 4 place decimal work is regarded good scientific work.

EXPLANATION OF TERMS USED IN FORMULAS.

I use the terms N/1, N/2, N/10 and N/50 as titles, and if the solution say N/2 H_2SO_4 is absolutely accurate and exact, I write it N/2 H_2SO_4 1.000, and if

otherwise, then $N/2 \text{ H}_2\text{SO}_4$ 0.99, or $N/2 \text{ H}_2\text{SO}_4$ 1.111 as the case may be. This is the C. F. or correction factor.

C. F. means the correction factor of a standard volumetric solution or the percent, upon the given normality. There is considerable difficulty experienced in obtaining absolutely accurate volumetric solutions, because of the influence of changes in temperature, humidity and pressure upon them, and the keeping qualities of these solutions. I have adopted the method of standardizing volumetric solutions just at the time of use, when running some pharmaceutical and chemical analyses, and the factor I determine I call the correction factor of the empirical solution, I am using, upon the given normality of that solution.

R. F. equals ratio factor, a ratio merely between two chosen solutions, regardless of whether they are absolutely standard or not, and the factor is always determined at the time of use.

E. F. equivalent factor, which depends entirely upon the normality of the standard volumetric solution chosen, and assumes that the normality chosen is 100% or has the C. F. of 1.000.

N/a and N/b are algebraic expressions, the a and the b must be given their proper values, and the C. F. of N/a , and E. F. of N/a , their proper values, so that the working of the formulas is possible. Where one formula leads on to the next, it is more convenient to carry over the logarithm of the numbers used, than to find the antilog.

These things will be brought out more clearly by example. (See Example, close of paper.)

There are two formulas for standardizing volumetric solutions:

Formula I.—General Standardization Formula—Solid.

$\text{Log Gm. of Standard} - \text{log E. F. of Standard for } N/a \text{ sol.} = \text{log mls } N/a \text{ sol. used} = \text{Log C. F. } N/a \text{ sol.}$ Find antilog.

This formula is used for determining the correction factor of a volumetric solution upon its normality, when standardized against a weighed amount of standard, which is a solid, as $N/2 \text{ NaOH}$ against $\text{KHC}_4\text{H}_4\text{O}_6$; $N/2 \text{ H}_2\text{SO}_4$ against Na_2CO_3 ; $N/10 \text{ HCl}$ as AgCl ; and $N/10 \text{ H}_2\text{SO}_4$ as BaSO_4 , etc. Here the N/a sol. means $N/2$ or $N/10$ as the case may be. The E. F. of N/a means E. F. for $N/2$ or $N/10$ sol. C. F. 1.000, and this is given by the fundamental law underlying volumetric chemical analysis that all substances always combine in the same proportion by weight.

Insert the proper values for Gm. of standard, for mls N/a sol., for E. F. of N/a sol., and apply Formula I; the result is the desired C. F. of the N/a sol.

Formula IIa.—($a = b$).

$\text{Log mls } N/a \text{ sol.} + \text{log C. F. } N/a \text{ sol.} - \text{log mls } N/b \text{ sol.} = \text{log C. F. of } N/b \text{ sol.}$ Find antilog.

Formula IIa'.—($a = b$).

$\text{Log mls } N/a \text{ sol.} - \text{log mls } N/b \text{ sol.} = \text{log R. F. } N/a \text{ sol. against } N/b \text{ sol.}$ Find antilog.

Formula IIa''.—($a = b$).

$\text{Log R. F. } N/b \text{ sol.} + \text{log C. F. } N/a \text{ sol.} = \text{log C. F. } N/b \text{ sol.}$ Find antilog.

Formula IIb.—($a > b$) $\times 5$.

$\text{Log mls } N/a \text{ sol.} + \text{log C. F. } N/a \text{ sol.} + \text{log } c - \text{log mls } N/b \text{ sol.} = \text{log C. F. } N/b \text{ sol.}$ Find antilog.

Formula IIb'.—($a - b$).

$\text{Log mls } N/a \text{ sol.} - \text{log mls } N/b \text{ sol.} = \text{log R. F. } N/b \text{ sol. in terms of } N/a \text{ sol.}$ Find antilog.

$\text{Log mls } N/a \text{ sol.} + \text{log } c - \text{log mls } N/b \text{ sol.} = \text{log R. F. } N/b \text{ sol. in terms of } N/b \text{ sol.}$ Find antilog.

Formula IIb'.—($a > b$).

$\log R. F. N/b \text{ sol.} + \log c + \log C. F. N/a \text{ sol.} = \log C. F. N/b \text{ sol.}$ Find antilog.

$\log R. F. N/b \text{ sol. as } N/b + \log C. F. N/a \text{ sol.} = \log C. F. \text{ of } N/b \text{ sol.}$ Find antilog

Formula IIc'.—($a < b$).

$\log \text{mils } N/a \text{ sol.} + \log C. F. N/a \text{ sol.} - \log C - \log \text{mils } N/b \text{ sol.} = \log C. F. N/b \text{ sol.}$

Find antilog.

Formula IIc'.—($a > b$).

$\log \text{mils } N/a \text{ sol.} - \log \text{mils } N/b \text{ sol.} = \log R. F. N/b \text{ sol. as } N/a.$ Find antilog.

$\log \text{mils } N/a \text{ sol.} - \log \text{mils } N/b \text{ sol.} - \log c = \log R. F. N/b \text{ sol. as } N/b.$ Find antilog.

Formula IIc''.—($a > b$).

$\log R. F. N/b \text{ sol. as } N/a - \log c + \log C. F. N/a \text{ sol.} = \log C. F. N/b \text{ sol.}$ Find antilog.

$\log R. F. N/b \text{ sol. as } N/b + \log C. F. N/a \text{ sol.} = \log C. F. N/b \text{ sol.}$ Find antilog.

In the above formulas the Formula IIa is the most general, and the others modifications of it to meet the different cases.

The one volumetric solution here is standardized against another, the latter having a known correction factor from Formula I, then after properly placing the data, and applying Formula II, the result gives C. F. of the N/a sol. The several forms of Formula II cover changes in normality as N/2 to N/10, N/10 to N/50, and *vice versa*, where blank tests are run, and where one solution depends upon another standard solution for its correction factor at the time of use.

*Formula IIIa'.—*General Assay Formula Direct Titration.

$\log \text{mils } N/a \text{ sol.} + \log C. F. N/a \text{ sol.} + \log E. F. N/a \text{ sol.} + \log 100 - \log \text{wt. substance taken} = \log \% \text{ w/w.}$ Find antilog.

$\% \text{ w/w} =$ absolute percentage, or percent by weight.

Formula IIIb'.—

$\log \text{mils } N/a \text{ sol.} + \log C. F. N/a \text{ sol.} + \log E. F. N/a \text{ sol.} + \log 100 - \log \text{vol. substance taken} = \log \% \text{ w/v.}$ Find antilog.

$\% \text{ w/v} =$ percentage concentration, or percent weight to volume.

The foregoing Formula III applies to all direct titrations, and is also used after Formula IV in residual titrations for all crude drugs, chemicals and their preparations which are assayed volumetrically. The two forms cover the cases of desired $\% \text{ w/w}$ or $\% \text{ w/v}$. Placing the values properly will give the desired results.

Formula IV and its several modifications apply to residual titrations, where volumetric solutions of like or unlike normality are used, and after determining the difference, further calculations are carried out then by use of Formula IIIa or IIIb.

Formula IVa'.—($a = b$).

$\log \text{mils } N/a \text{ sol.} + \log C. F. N/a \text{ sol.} = \log \text{mils } N, a \text{ sol. C. F. } 1.000.$ Find antilog.

$\log \text{mils } N/b \text{ sol.} + \log C. F. N/b \text{ sol.} = \log \text{mils } N/b \text{ sol. C. F. } 1.000.$ Find antilog.

Subtract the antilogs, and the result equals mils used by substance. Then apply Formula IIIa or IIIb as required.

Formula IVb'.—($a > b$).

$\log \text{mils } N/a \text{ sol.} + \log C. F. N/a \text{ sol.} + \log c = \log \text{mils } N/b \text{ sol. used in excess.}$ Find antilog.

$\log \text{mils } N/a \text{ sol.} + \log C. F. N/b \text{ sol.} = \log \text{mils } N/b \text{ sol. used in residual titration.}$ Find antilog.

Subtract the antilogs and the result equals the mils used by the substance. Then apply Formula IIIa or IIIb, as required.

Formula IVb' from IVb'.—($a > b$).

$\log \text{mils } N/b \text{ sol. C. F. } 1.000 - \log c = \log \text{mils } N/a \text{ sol. C. F. } 1.000.$ Find antilog. Then apply IIIa or IIIb as required, using N/a E. F.

Formula IVc'.—($a < b$).

This is the same as IVb, only values of a and b are *vice versa*, therefore changes signs $+$ to $-$, and $-$ to $+$. Then apply Formula IIIa or IIIb.

There is one formula for gravimetric and electrolytic analyses. I have used this because the U. S. P. states how much of any substance should be present as such and such a weight, and so these formulas will give the percentage if the values are properly placed.

Formula Va.

Let m = wt. of sub. obtained, and w = wt. of sub. taken, then $\log m + \log 100 - \log w = \log \frac{c}{100} w/w$.

Formula Vb.

$\log m + \log 100 - \log V = \log \frac{c}{100} w/v$. c = vol. taken

It will be noticed that I introduced \log of 100 or 2.000 into Formulas III and V. This is done to make the $\frac{c}{100}$ be expressed with its sign. If one desires that it is expressed as a decimal fraction, omit the \log of 100. I have found the latter method too confusing, and so I have retained $\log 100$ and after the figures place the $\frac{c}{100}$ sign.

1. In order to use any empirical solution, I have tabulated for class and laboratory use the volumetric solutions of the U. S. P. and after them their abbreviations, and the formulas to be applied.

It has been my experience that $N \frac{1}{2}$, $N 10$ and $N 50$ solutions will suffice for nearly all the volumetric analyses, and therefore I have only listed those.

Tenth Normal Barium Hydroxide, $N/10$ $Ba(OH)_2$

Ia against $N/10$ HCl

Iib against $N \frac{1}{2}$ HCl

Tenth Normal Bromine, $N/10$ Br

Ia against $N/10$ $Na_2S_2O_3$ $\times 5$

Half Normal Hydrochloric Acid, $N 2$ HCl

I against Na_2CO_3

I as $AgCl$

Iia against $N/2$ KOH or $N 2$ $NaOH$

Iic against $N/10$ KOH or $N 10$ $NaOH$

Tenth Normal Hydrochloric Acid, $N 10$ HCl

I against Na_2CO_3

I as $AgCl$

Iia against $N/10$ KOH or $N 10$ $NaOH$

Iib against $N/2$ KOH or $N 1$ $NaOH$

Iic against $N 50$ KOH or $N 50$ $NaOH$

Tenth Normal Iodine, $N/10$ I

Ia against $N 10$ $Na_2S_2O_3$

Tenth Normal Oxalic Acid, $N 10$ $H_2C_2O_4 \cdot 2H_2O$

Ia against $N 10$ $K_2Cr_2O_7$ or $N 10$ $Na_2Cr_2O_7$

Tenth Normal Potassium Dichromate or Sodium Dichromate, $N 10$ $K_2Cr_2O_7$

$N 10$ $Na_2Cr_2O_7$

I against pure iron, Fe

Iib against $N 10$ KOH or $N 10$ $NaOH$ $\times e = 3$

Iia against $N 10$ $Na_2S_2O_3$

Half Normal Potassium Hydroxide, $N 2$ KOH

I against $KHC_4H_4O_6$

Iia against $N 2$ HCl or $N 2$ H_2SO_4

Iic against $N 10$ HCl or $N 10$ H_2SO_4

Tenth Normal Potassium Hydroxide, $N 10$ KOH

I against $KHC_4H_4O_6$

Iia against $N 10$ HCl or $N 10$ H_2SO_4

Iib against $N 2$ HCl or $N 2$ H_2SO_4

Fiftieth Normal Potassium Hydroxide, $N 50$ KOH

I against $KHC_4H_4O_6$

Iia against $N 50$ HCl or $N 50$ H_2SO_4

Iib against $N 10$ HCl or $N 10$ H_2SO_4

Half Normal Alcoholic Potassium Hydroxide, N/19 KOH al.

I against $\text{KHC}_4\text{H}_4\text{O}_6$

IIa against N/2 HCl or N/2 H_2SO_4

IIc against N/10 HCl or N/10 H_2SO_4

Tenth Normal Potassium Permanganate, N/10 KMnO_4

I against $\text{Na}_2\text{C}_2\text{O}_4$

IIa against N/10 Oxalic Acid, or N/10 Thiosulphate

Tenth Normal Potassium Sulphocyanate, N/10 KCNS

I against NaCl

IIa against N/10 AgNO_3 ; N/10 HCl; N/10 NaCl

IIb against N/2 HCl

Tenth Normal Silver Nitrate, N/10 AgNO_3

I against NaCl or as AgCl

IIa against N/10 KCNS; N/10 HCl; N/19 NaCl

Tenth Normal Sodium Chloride, N/19 NaCl

I as AgCl

IIa against N/10 AgNO_3

Half Normal Sodium Hydroxide, N/2 NaOH

I against $\text{KHC}_4\text{H}_4\text{O}_6$

IIa against N/2 HCl or N/2 H_2SO_4

IIc against N/10 HCl or N/10 H_2SO_4

Tenth Normal Sodium Hydroxide, N/10 NaOH

I against $\text{KHO}_4\text{H}_4\text{O}_6$

IIa against N/10 HCl or N/19 H_2SO_4

IIb against N/2 HCl or N/2 H_2SO_4

IIc against N/50 HCl or N/50 H_2SO_4

Fiftieth Normal Sodium Hydroxide, N/50 NaOH

I against $\text{KHC}_4\text{H}_4\text{O}_6$

IIa against N/50 HCl or N/50 H_2SO_4

IIb against N/10 HCl or N/10 H_2SO_4

Tenth Normal Sodium Thiosulphate, N/10 $\text{Na}_2\text{S}_2\text{O}_3$

I against Iodine

IIa against N/10 = $\text{K}_2\text{Cr}_2\text{O}_7$; N/10 $\text{Na}_2\text{Cr}_2\text{O}_7$; N/10 KMnO_4

Half Normal Sulphuric Acid, N/2 H_2SO_4

I against Na_2CO_3

IIa against N/2 KOH or N/2 NaOH

IIc against N/10 KOH or N/10 NaOH

Tenth Normal Sulphuric Acid, N/10 H_2SO_4

I against Na_2CO_3

IIa against N/10 KOH or N/10 NaOH

IIb against N/2 KOH or N/2 NaOH

IIc against N/50 KOH or N/50 NaOH

Fiftieth Normal Sulphuric Acid, N/50 H_2SO_4

I against Na_2CO_3

IIa against N/50 KOH or N/50 NaOH

IIb against N/10 KOH or N/10 NaOH

Copper Sulphate Solution of Fehling's, CuSO_4

I against Sugar

IIc against N/10 Thiosulphate (10 Cc. = 27.75 Cc. N/10 Thio)

Iodo Bromide Test Solution, IBr T. S.

IIc against N/10 Thiosulphate

2. For use in class and in the laboratory, I have tabulated all the assays of the U. S. P. and N. F., volumetrically, gravimetrically, and electrolytically, and after the Latin abbreviation give the formula to be applied.

The list is as follows:

U. S. P. IX.

| Volumetric | Latin Abbreviation. | Formula. | Volumetric | Latin Abbreviation. | Formula. |
|------------|------------------------|---------------------------|------------|------------------------------|-------------|
| 1 | Aceton. | IVa & IIIa | 48 | Calc. Chlor. | IVa & IIIa |
| 2 | Acid. Acet. | IIIa | 49 | Calc. Hypophos. | IVa & IIIa |
| 3 | Acid. Acet. Dil. | IIIa | 49 | Calc. Lact. | IIIa |
| 4 | Acid. Acet. Glac. | IIIa | 50 | Calc. Sulphid. Crud. | IVa & IIIa |
| 5 | Acid. Benz. | IIIa | 51 | Calx. | IVa & IIIa |
| 6 | Acid. Bor. | IIIa | 52 | Cglx. Chlorin | IIIa |
| 7 | Acid. Cit. | IIIa | 53 | Chloral. Hydrat. | IVa & IIIa |
| 8 | Acid. Hydriod. Dil. | IIIa | 54 | Chrom. Triox. | IIIa |
| 9 | Acid. Hydrobrom. Dil. | IIIa | 55 | Cret. Praep. | IVa & IIIa |
| 10 | Acid. Hydrochlor. | IIIa | 56 | Cupr. Sulph. | IIIa |
| 11 | Acid. Hydrochl. Dil. | IIIa | 57 | Emp. Bellad. | IVb & IIIa |
| 12 | Acid. Hydrocyan. Dil. | IIIa | 58 | Ext. Aconit. | IVb & IIIa |
| 13 | Acid. Hypophos. | IIIa | 59 | Ext. Bellad. Fol. | IVb & IIIa |
| 14 | Acid. Hypophos. Dil. | IIIa | 60 | Ext. Hyoscyam. | IVb & IIIa |
| 15 | Acid. Lact. | IIIa | 61 | Ext. Nuc. Vom. | IVb & IIIa |
| 16 | Acid. Nitric. | IIIa | 62 | Ext. Opii | IVb & IIIa |
| 17 | Acid. Phos. | IVa & IIIa | 63 | Ext. Physostig. | IVb & IIIa |
| 18 | Acid. Phos. Dil. | IVa & IIIa | 64 | Ext. Stramon. | IVb & IIIa |
| 19 | Acid. Salicyl. | IIIa | 65 | Ferr. Carb. Sacch. | IIIa |
| 20 | Acid. Sulph. | IIIa | 66 | Ferr. Chlor. | IIIa |
| 21 | Acid. Sulph. Arom. | IIIa | 67 | Ferr. & Ammon. Cit. | IIIa for Fe |
| 22 | Acid. Sulph. Dil. | IIIa | 68 | Ferr. & Quin. Cit. | IIIa for Fe |
| 23 | Acid. Tart. | IIIa | 69 | Ferr. Phos. | IIIa |
| 24 | Acid. Trichloracet. | IIIa | 70 | Ferr. Sulph. | IIIa |
| 25 | Aconit. | IVb & IIIa | 71 | Ferr. Sulph. Exsic. | IIIa |
| 26 | Ammon. Benz. | IIIa | 72 | Ferr. Sulph. Gran. | IIIa |
| 27 | Ammon. Brom. | IVa & IIIa | 73 | Ferr. Reduct. | IIIa |
| 28 | Ammon. Carb. | IIIa | 74 | Fldext. Aconit. | IVb & IIIb |
| 29 | Ammon. Chlor. | IVa & IIIa | 75 | Fldext. Bellad. Rad. | IVb & IIIb |
| 30 | Ammon. Iod. | IVa & IIIa | 76 | Fldext. Hyoscyam. | IVb & IIIb |
| 31 | Ammon. Salicyl. | IIIa | 77 | Fldext. Ipecac. | IVb & IIIb |
| 32 | Antimon. et Pot. Tart. | IIIa | 78 | Fldext. Nuc. Vom. | IVb & IIIb |
| 33 | Aq. Ammon. | IIIa | 79 | Fldext. Pilocarp. | IVb & IIIb |
| 34 | Aq. Ammon. Fort. | IIIa | 80 | Hydrarg. Chlor. Mite | IVa & IIIa |
| 35 | Arg. Nit. | IIIa | 81 | Hydrarg. Iod. Flav. | IVa & IIIa |
| 36 | Arg. Nit. Fus. | IIIa | 82 | Hydrarg. Oxid. Flav. | IIIa |
| 37 | Arg. Ox. | IIIa | 83 | Hydrarg. Oxid. Rub. | IIIa |
| 38 | Arsen. Iod. | IIIa | 84 | Hydrarg. Salicyl. | IVa & IIIa |
| 39 | Arsen. Triox. | IIIa | 85 | Hydrarg. | IIIa |
| 40 | Bellad. Fol. | IVb & IIIa | 86 | Hydrarg. cum. Cret. | IIIa |
| 41 | Bellad. Rad. | IVb & IIIa | 87 | Hyoscyam. | IVb & IIIa |
| 42 | Benzaldehyd. | IIIa, Blank IIa | 88 | Iodum. | IIIa |
| 43 | Betaenecain. Hydrochl. | IIIa | 89 | Ipecac. | IVb & IIIa |
| 44 | Caffein. Sod. Benz. | IIIa for Sod. Benz. | 90 | Liq. Acid. Arsen. | IIIa |
| 45 | Calc. Brom. | IVa & IIIa | 91 | Liq. Ammon. Acet. | IVa & IIIa |
| 46 | Calc. Carb. Præc. | IVa & IIIa | 92 | Liq. Arsen. et Hydrarg. Iod. | IIIa |
| | | | 93 | Liq. Calc. | IIIb |
| | | | 94 | Liq. Ferr. Chlor. | IIIa |
| | | | 95 | Liq. Ferr. Subsulph. | IIIa |

U. S. P. IX (Continued).

| Volumetric | Latin Abbreviation | Formula. | Volumetric | Latin Abbreviation | Formula. |
|------------|------------------------|------------|------------|----------------------|-------------------------------|
| 96 | Liq. Ferr. Persulph. | IIIa | 150 | Pot. Permang. | IIIa |
| 97 | Liq. Formaldehyd. | IVa & IIIa | 151 | Pulv. Eff. Co. | IVa & IIIa |
| 98 | Liq. Hydrog. Diox. | IIIa | | | for Na- |
| 99 | Liq. Iod. Co. | IIIa | | | HCO ₃ |
| 100 | Liq. Plumb. Subacet. | IVa & IIIa | | | IIIa for |
| 101 | Liq. Pot. Arsen. | IIIa | | | KNaC ₄ - |
| 102 | Liq. Pot. Cit. | IIIa | | | H ₄ O ₆ |
| 103 | Liq. Pot. Hydrox. | IIIa | 152 | Sod. Acet. | IIIa |
| 104 | Liq. Sod. Chlorinat. | IIIa | 153 | Sod. Arsen. | IIIa |
| 105 | Liq. Sod. Arsen. | IIIa | 154 | Sod. Arsen. Exsic. | IIIa |
| 106 | Liq. Sod. Glycerophos. | IIIa | 155 | Sod. Benz. | IIIa |
| 107 | Liq. Sod. Hydrox. | IIIa | 156 | Sod. Bicarb. | IIIa |
| 108 | Liq. Zinc. Chlor. | IVa & IIIa | 157 | Sod. Bor. | IIIa |
| 109 | Lith. Brom. | IVa & IIIa | 158 | Sod. Brom. | IIIa |
| 110 | Lith. Carb. | IVa & IIIa | 159 | Sod. Cacodyl. | IIIa |
| 111 | Lith. Cit. | IIIa | 160 | Sod. Carb. Monohyd. | IIIa |
| 112 | Magm. Mag. | IVa & IIIa | 161 | Sod. Chlor. | IVa & IIIa |
| 113 | Mag. Carb. | IVa & IIIa | 162 | Sod. Cit. | IIIa |
| 114 | Mag. Oxid. | IVa & IIIa | 163 | Sod. Cyan. | IVa & IIIa |
| 115 | Mag. Oxid. Pond. | IVa & IIIa | 164 | Sod. Glycerophos | IIIa |
| 116 | Mangan. Diox. Praec. | IVa & IIIa | 165 | Sod. Hydrox. | IIIa |
| 117 | Mass. Ferr. Carb. | IIIa | 166 | Sod. Hypophos. | IVa & IIIa |
| 118 | Mass. Hydrarg. | IIIa | 167 | Sod. Iod. | IVa & IIIa |
| 119 | Methyl Salicyl. | IVa & IIIa | 168 | Sod. Nitris | IIIa |
| 120 | Nux Vom. | IVa & IIIa | 169 | Sod. Perbor. | IIIa |
| 121 | Ol. Amygd. Amar. | IVa & IIIa | 170 | Sod. Phenolsulph. | IVa & IIIa |
| 122 | Ol. Limon. | IVa & IIIa | 171 | Sod. Phos. | IVa & IIIa |
| 123 | Ol. Menth. PiP. | IVa & IIIa | 172 | Sod. Phos. Exsic. | IVa & IIIa |
| 124 | Ol. Rosmar. | IVa & IIIa | 173 | Sod. Salicyl. | IIIa |
| 125 | Ol. Santal. | IVa & IIIa | 174 | Sod. Sulphis Exsic. | IVa & IIIa |
| 126 | Ol. sinap. Vol. | IVa & IIIa | 175 | Sod. Thiosulph. | IIIa |
| 127 | Opil Pulv. | IVb & IIIa | 176 | Stramon. | IVb & IIIa |
| 128 | Opium | IVb & IIIa | 177 | Stront. Brom. | IVa & IIIa |
| 129 | Opium Deod. | IVb & IIIa | 178 | Stront. Iod. | IVa & IIIa |
| 130 | Opium. Gran. | IVb & IIIa | 179 | Stront. Salicyl. | IIIa |
| 131 | Paraform. | IVa & IIIa | 180 | Syr. Acid. Hydriod. | IVa & IIIa |
| 132 | Phenol. | IVa & IIIa | 181 | Syr. Ferr. Iod. | IVa & IIIa |
| 133 | Phenol. Liq. | IVa & IIIa | 182 | Theobrom. Sodio-Sal. | IIIa |
| 134 | Physostig. | IVb & IIIa | 183 | Thymol. Iod. | IIIa |
| 135 | Pilocarp. | IVb & IIIa | 184 | Thyroid. Sicc. | IIIa |
| 136 | Plumb. Acet. | IVa & IIIa | 185 | Tr. Aconit. | IVb & IIIb |
| 137 | Plumb. Oxid. | IVa & IIIa | 186 | Tr. Bellad. Fol. | IVb & IIIb |
| 138 | Pot. Acet. | IIIa | 187 | Tr. Ferr. Chlor. | IIIa |
| 139 | Pot. Bicarb. | IIIa | 188 | Tr. Hyosey. | IVb & IIIb |
| 140 | Pot. Bitart. | IIIa | 189 | Tr. Iodi | IIIb |
| 141 | Pot. Brom. | IVa & IIIa | 190 | Tr. Nux Vom. | IVb & IIIb |
| 142 | Pot. Carb. | IIIa | 191 | Tr. Opil | IVb & IIIb |
| 143 | Pot. Chlor. | IVa & IIIa | 192 | Tr. Opil Deod. | IVb & IIIb |
| 144 | Pot. Cit. | IIIa | 193 | Tr. Physostig. | IVb & IIIb |
| 145 | Pot. et. Sod. Tart. | IIIa | 194 | Tr. Stramon. | IVb & IIIb |
| 146 | Pot. Hydrox. | IIIa | 195 | Zinc. Carb. | IIIa |
| 147 | Pot. Hypophos. | IVa & IIIa | 196 | Zinc. Chlor. | IVa & IIIa |
| 148 | Pot. Iod. | IVa & IIIa | 197 | Zinc. Oxid. | IIIa |
| 149 | Pot. Nitras. | IVa & IIIa | 198 | Zinc. Stear. | IVa & IIIa |

U. S. P. IX (Continued).

| Gravimetric Latin Abbreviation. | Formula | Gravimetric Latin Abbreviation. | Formula. |
|---------------------------------------------------|--------------------|------------------------------------------------------|-------------|
| 1 Alum. as AlO_3 | Va | 44 Quin. Tann. for quinine | Va |
| 2 Alum. Exsic. | Va | 45 Scam. Rad. for resin | Va |
| 3 Asafoet. | Va | 46 Sod. Sulphas as BaSO_4 | Va |
| 4 Bism. Betanaph. as Beta-naphthol | Va | 47 Sp. Camphor as camphor | Polariscope |
| Bism. Betanaph. as Bi_2O_3 | Va | 48 Sulphur Bot. as BaSO_4 | Va |
| 5 Bism. et Ammon. Cit. as Bi_2O_3 | Va | 49 Sulphur Praec. as BaSO_4 | Va |
| Bism. Subcarb. as Bi_2O_3 | Va | 50 Sulphur Sublim. as BaSO_4 | Va |
| 6 Bism. Subgal. as Bi_2O_3 | Va | 51 Tr. Cinchon. as quinine | Vb |
| 7 Bism. Subnit. as Bi_2O_3 | Va | 52 Tr. Cinchon. Co. as quinine | Vb |
| 8 Bism. Subsalicyl. as Bi_2O_3 | Va | 53 Tr. Colch. Sem. as colchicine | Vb |
| 9 Bism. Subsalicyl. as Bi_2O_3 | Va | 54 Tr. Hydrast. as hydrastine | Vb |
| 10 Caffein. Cit. as Caffeine | Va | 55 Tr. Iodi for KI | Vb |
| 11 Caff. Sod. Benz. as Caffeine | Va | 56 Toxitalbel. Hydrarg. Chlor. Corr. as HgS | Va |
| 12 Calc. Glycerophos. as CaO | Va | 57 Ung. Hydrarg. Dil. | Va |
| 13 Canthar. as cantharidin | Va | 58 Ung. Hydrarg. Dil. | Va |
| 14 Cinch. as cinchona | Va | 59 Uran. Nit. as U_3O_8 | Va |
| 15 Cinch. Rub. cinchona | Va | 60 Zinc. Acet. as ZnO | Va |
| 16 Colch. Corm. as colchicine | Va | 61 Zinc. Phenolsulph. as ZnO | Va |
| 17 Colch. Sem. as colchicine | Va | 62 Zinc. Sulph. as ZnO | Va |
| 18 Collod. as pyroxylin | Va | 63 Zinc. Valer. as ZnO | Va |
| 19 Diastase | 50 \times starch | 64 Zinc. as ZnO | Va |
| 20 Ext. Colch. as colchicine | Va | Electrolytic Latin Abbreviation | |
| 21 Ext. Hydrast. as hydrastine | Va | 1 Hydrarg. Chlor. Cor. | Va |
| 22 Ferr. et Quin. Cit. as quinine | Va | 2 Hydrarg. Chlor. Mit. | Va |
| 23 Fldext. Cinchon. as cinchona | Vb | 3 Hydrarg. Iod. Flav. | Va |
| 24 Fldext. Colch. Sem. as colchicine | Vb | 4 Hydrarg. Iod. Rub. | Va |
| 25 Fldext. Guan. as caffeine | Vb | 5 Hydrarg. Oxid. Flav. | Va |
| 26 Fldext. Hydrast. as hydrastine | Vb | 6 Hydrarg. Oxid. Rub. | Va |
| 27 Glycer. Hydrast. as hydrastine | Vb | 7 Hydrarg. Salicyl. | Va |
| 28 Guaran. as caffeine | Va | 8 Hydrarg. | Va |
| 29 Hydrarg. Chlor. Corr. as HgS | Va | 9 Hydrarg. Ammon. | Va |
| 30 Hydrarg. Ammon. as HgS | Va | 10 Hydrarg. cum Cret. | Va |
| 31 Hydrastis as hydrastine | Va | 11 Toxitalbel. Hydrarg. Chlor. Corr. | Va |
| 32 Jalap as resin | Va | 12 Zinc. Acet. | Va |
| 33 Lin. Camph. as camphor | Polariscope | 13 Zinc. Phenolsulph. | Va |
| 34 Liq. Iod. Co. for KI | Va | 14 Zinc. Sulph. | Va |
| 35 Liq. Mag. Cit. as magnesium pyrophosphate | Va | 15 Zinc. Valer. | Va |
| 36 Magma Bis. as Bi_2O_3 | Va | 16 Zinc. | Va |
| 37 Mag. Sulph. as magnesium pyrophosphate | Va | VOLUMETRIC ASSAYS IN THE NATIONAL FORMULARY. | |
| 38 Malt | 5x starch | Latin Abbreviation. | |
| 39 Pancreat. | 25x starch | 1 Ext. Conii | IVb & IIIa |
| 40 Pepsin | 300x egg albumen | 2 Ext. Ignat | IVb & IIIa |
| 41 Podophyl. for resin | Va | 3 Ferr. Oxid. Sacch. | IIIa |
| 42 Pot. sulphurat. for S | Va | 4 Fldext. Conii | IVb & IIIa |
| 43 Quin. et Urea Hydrochlor. for quinine | Va | 5 Fldext. Stramon | IVb & IIIa |
| | | 6 Liq. Ferr. Acet. | IIIa |
| | | 7 Liq. Ferri. Cit | IIIa |
| | | 8 Liq. Hydrarg. Nit | IIIa |
| | | 9 Sulphur. Iod | IIIa |
| | | 10 Tr. Opii Crocat. | IVb & IIIb |
| | | 11 Vin. Ipecac | IVb & IIIb |

VOLUMETRIC ASSAYS IN THE NATIONAL FORMULARY (*Continued*).

| Latin Abbreviation. | Formula | Gravimetric Latin Abbreviation. | Formula |
|------------------------|------------|---------------------------------------------------------|---------|
| 12 Acid. Formic. | IIIb | 1 Fldext. Cinchon. Aq. as quinine | Vb |
| 13 Ammon. Hypophos. | IVa & IIIa | 2 Fldext. Colch. Corm. as colchicine | Vb |
| 14 Ammon. Phos. | IVa & IIIa | 3 Glycer. Bism. as Bi_2O_3 | Vb |
| 15 Antimon. Oxid. | IIIa | 4 Liq. Alumin. Acet. as Al_2O_3 | Vb |
| 16 Antimon. Sulphuret. | IIIa | 5 Liq. Alumin. Subacet. as Al_2O_3 | Vb |
| 17 Bromium | IIIa | 6 Vin. Colch. Sem. as colchicine | Vb |
| 18 Conium | IVb & IIIa | 7 Alum. Chlor. as Al_2O_3 | Va |
| 19 Ferr. Glycerophos. | IIIa | 8 Alum. Sulph. as Al_2O_3 | Va |
| 20 Ferr. Hypophos. | IIIa | 9 Caff. Tost. as caffeine | Va |
| 21 Ferr. Lact. | IIIa | 10 Kola as caffeine | Va |
| 22 Ferr. Pyrophos. | IIIa | 11 Mangan. Cit. Sol. as Mn_3O_4 | Va |
| 23 Ignat. | IVb & IIIa | 12 Mangan. Glycerophos. Sol. as Mn_3O_4 | Va |
| 24 Lith. Salicyl. | IIIa | 13 Mangan. Sulph. as Mn_3O_4 | Va |
| 25 Magnes. Chlorid. | IVa & IIIa | | |
| 26 Mangan. Hypophos. | IVa & IIIa | | |
| 27 Ol. Bergam. | IVa & IIIa | | |

As 4 place logarithms are sufficiently accurate for almost all of the present pharmaceutical assaying, the E. F. of substances for N/2, N/10 and N/50 solutions, as found in U. S. P., can be easily changed into their corresponding logarithms. I have likewise made a list of these logarithmic equivalents, but have not put them into the body of this paper, because applying the rule for logarithms it is easy to find the one that is needed, or many chemical annuals give those values, but for convenience in pharmaceutical assaying I have listed them under headings N/2, N/10 and N/50 instead of under each volumetric solution, and have appended them to this paper, at the very close.

It may still appear useless and too far-fetched and beyond the average intellect of the pharmacy student to apply such a mathematical training to pharmaceutical assaying. Let me state, in closing, that when I presented this a year ago last summer to the conference of instructors at the University of Wisconsin, under the leadership of Dr. Edward Kremers, I was asked by Mr. Roland Kremers if I really taught such engineering rules to the pharmacy students. In reply, I said "I really did," and I still do so. It has been my peculiar experience, as a pharmacy student, to have been well grounded in engineering physics and mathematics, and these, combined with chemistry, pharmacology, physiology and pharmacy, have given me a little insight into some of the complexities found in pharmaceutical assaying.

If I can calculate the results correctly from the standardization of a volumetric solution to the assay of a crude drug, chemical, or their preparations by direct or residual titration inside of 5 to 10 minutes, once the data are obtained, and the tables at hand, I feel that the method is certainly a time and labor saving device, as well as accurate, and one that can be rechecked quickly. However, when I have several hundred mathematical calculations in pharmaceutical assaying to look over and correct, I personally use the slide rule, and it takes but a moment to see where errors and blunders have been made.

I could also append the discussion of experimental error, mathematical error; such as absolute error; percentage of error; and probable error; which is involved in

all pharmaceutical assaying, but I have purposely omitted it from this paper because it would make it quite lengthy, and is also an entirely different phase, yet very important in pharmaceutical assaying, and tells why some things are really difficult, and the accuracy that can be attained.

In order to show by concrete example how these formulas apply, consider the following example:

Given—4.704 Gm. $\text{KHC}_4\text{H}_4\text{O}_6$ require 45.82 mls $\text{N}/2$ NaOH for neutralization.

Also—48.75 mls $\text{N}/2$ H_2SO_4 neutralize 42.96 mls $\text{N}/2$ NaOH .

In assaying a sample of hydrated chloral, 3.039 Gm. of it, after the addition of 50 mls $\text{N}/2$ NaOH , standardized as above, in excess, upon residual titration, required 22.35 mls $\text{N}/2$ H_2SO_4 .

What is the % strength of the hydrated chloral?

1st. Apply Formula I to get C. F. of $\text{N}/2$ NaOH .

$$\begin{array}{rcl}
 \log 4.704 & 0.6725 & 1 \text{ ml } \text{N}/2 \text{ NaOH} = 0.09407 = 8.9734 - 10 \\
 - \log \text{E. F. } 0.09407 & 8.9734 - 10 & \\
 \hline
 & 1.6991 & \\
 - \log \text{ mls } = 45.82 & 1.6611 & \\
 \hline
 = \log \text{ C. F. } \text{N}/2 \text{ NaOH} & 0.0380 & = 1.091
 \end{array}$$

2nd. Apply Formula IIa to get C. F. of $\text{N}/2$ H_2SO_4 .

$$\begin{array}{rcl}
 \log 42.96 & 1.6320 & \\
 + \log 1.091 & 0.0380 & \\
 \hline
 & 1.5940 & \\
 - \log 48.75 & 1.6879 & \\
 \hline
 = \log \text{ C. F. } \text{N}/2 \text{ H}_2\text{SO}_4 & 0.9061 & 10 = 0.8056
 \end{array}$$

3rd. Apply Formula IVa for residual titration.

$$\begin{array}{rcl}
 \log 50 & 1.6990 & \\
 + \log 1.091 & 0.0380 & \text{antilog or no} \\
 \hline
 & 1.7370 & = 54.58 \text{ mls } \text{N}/2 \text{ NaOH } 1.000 \text{ used in excess} \\
 \hline
 \log 22.35 & 1.3493 & \\
 + \log 0.8056 & 0.9061 - 10 & \\
 \hline
 & 1.2554 & 18.61 \text{ mls } \text{N}/2 \text{ H}_2\text{SO}_4 1.000 \text{ mls used in residual titration}
 \end{array}$$

36.57 mls $\text{N}/2$ sol 1.000 used by hydrated chloral

4th and lastly. Apply Formula IIa for % of hydrated chloral.

$$\begin{array}{rcl}
 \log 3657 & 1.5630 & \\
 + \log 0.08270 & 8.9175 - 10 & \\
 + \log 100 & 2.0000 & \\
 \hline
 & 2.4805 & \\
 - \log 3.039 & 0.4827 & \\
 \hline
 = \log \% & 1.9978 & = 99.5\%
 \end{array}$$

LOGARITHMIC EQUIVALENTS

| No. | Chemical. | Formula. | N/2 Equivalent | Logarithm |
|-----|------------------------------------|---------------------------------------------------------------------|----------------|-----------|
| 1 | Acetic Acid | $\text{HC}_2\text{H}_3\text{O}_2$ | 0.03002 | 8.4774-10 |
| 2 | Acetic Anhydride | $(\text{CH}_3\text{CO})_2$ | 0.02551 | 8.4067-10 |
| 3 | Ammonia Gas | NH_3 | 0.00852 | 7.9304-10 |
| 4 | Ammonium Acetate | $\text{NH}_4\text{C}_2\text{H}_3\text{O}_2$ | 0.03854 | 8.5860-10 |
| 5 | Ammonium Carbonate | $(\text{NH}_4)_2\text{CO}_3$ | 0.02402 | 8.3804-10 |
| 6 | Ammonium Carbonate (U. S. P.) | $\text{NH}_4\text{HCO}_3 \cdot \text{NH}_3\text{NH}_2\text{CO}_2$ | 0.02619 | 8.4181-10 |
| 7 | Ammonium Chloride | NH_4Cl | 0.02675 | 8.4273-10 |
| 8 | Barium Hydroxide | $\text{Ba}(\text{OH})_2 + 8\text{H}_2\text{O}$ | 0.07888 | 8.8969-10 |
| 9 | Benzaldehyde | $\text{C}_7\text{H}_6\text{O}$ | 0.05300 | 8.7243-10 |
| 10 | Boric Acid | H_3BO_3 | 0.03101 | 8.4915-10 |
| 11 | Borneol | $\text{C}_{10}\text{H}_{18}\text{O}$ | 0.07707 | 8.8869-10 |
| 12 | Bornyl Acetate | $\text{C}_{11}\text{H}_{17}\text{C}_2\text{H}_3\text{O}_2$ | 0.09808 | 8.9916-10 |
| 13 | Calcium Carbonate | CaCO_3 | 0.02502 | 8.3982-10 |
| 14 | Calcium Hydroxide | $\text{Ca}(\text{II})_2$ | 0.01852 | 8.2677-10 |
| 15 | Calcium Lactate | $\text{Ca}(\text{C}_3\text{H}_5\text{O}_3)$ anhydrous | 0.05454 | 8.7367-10 |
| 16 | Calcium Oxide | CaO | 0.01402 | 8.1467-10 |
| 17 | Cinnamic Aldehyde | $\text{C}_9\text{H}_8-\text{O}$ | 0.03302 | 8.5188-10 |
| 18 | Citral | $\text{C}_{10}\text{H}_{16}\text{O}$ | 0.07600 | 8.8808-10 |
| 19 | Citric Acid, crystallized | $\text{H}_3\text{O}_6\text{H}_5\text{O}_7 + \text{H}_2\text{O}$ | 0.03502 | 8.5443-10 |
| 20 | Formaldehyde | CH_2O | 0.01501 | 8.1762-10 |
| 21 | Hydrated Chloral | $\text{C}_2\text{HOCl}_3 + \text{H}_2\text{O}$ | 0.08270 | 8.9175-10 |
| 22 | Hydrobromic Acid | HBr | 0.04047 | 8.6070-10 |
| 23 | Hydrochloric Acid | HCl | 0.01824 | 8.2610-10 |
| 24 | Hydriodic Acid | HI | 0.06397 | 8.8060-10 |
| 25 | Hypophosphorous Acid | HPH_2O_2 | 0.03303 | 8.5189-10 |
| 26 | Lactic Acid | $\text{HC}_3\text{H}_5\text{O}_3$ | 0.04503 | 8.6535-10 |
| 27 | Lead Acetate, crystallized | $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2 + 3\text{H}_2\text{O}$ | 0.09480 | 8.9768-10 |
| 28 | Lead Subacetate, assumed as | $\text{Pb}_2\text{O}(\text{C}_2\text{H}_3\text{O}_2)_2$ | 0.06853 | 8.8359-10 |
| 29 | Lithium Carbonate | Li_2CO_3 | 0.01847 | 8.2664-10 |
| 30 | Lithium Citrate, anhydrous | $\text{Li}_3\text{C}_6\text{H}_5\text{O}_7$ | 0.03498 | 8.5438-10 |
| 31 | Lithium Citrate, crystallized | $\text{Li}_3\text{C}_6\text{H}_5\text{O}_7 + 4\text{H}_2\text{O}$ | 0.04699 | 8.6720-10 |
| 32 | Lithium Salicylate | $\text{LiC}_7\text{H}_5\text{O}_3$ | 0.07199 | 8.8572-10 |
| 33 | Magnesium Carbonate | $(\text{MgCO}_3)_4\text{Mg}(\text{OH})_2 + 5\text{H}_2\text{O}$ | 0.02429 | 8.3854-10 |
| 34 | Magnesium Hydroxide | $\text{Mg}(\text{OH})_2$ | 0.01480 | 8.1703-10 |
| 35 | Magnesium Oxide | MgO | 0.01008 | 8.0033-10 |
| 36 | Menthol | $\text{C}_{10}\text{H}_{20}\text{O}$ | 0.07808 | 8.8925-10 |
| 37 | Menthyl Acetate | $\text{C}_{10}\text{H}_{19}\text{C}_2\text{H}_3\text{O}_2$ | 0.09909 | 8.9959-10 |
| 38 | Methyl Salicylate | $\text{CH}_3 \cdot \text{C}_7\text{H}_5\text{O}_3$ | 0.07603 | 8.8810-10 |
| 39 | Nitric Acid | HNO_3 | 0.03151 | 8.4984-10 |
| 40 | Oxalic Acid | $\text{H}_2\text{C}_2\text{O}_4 + 2\text{H}_2\text{O}$ | 0.03153 | 8.4987-10 |
| 41 | Paraformaldehyde | $(\text{CH}_2\text{O})_3$ | 0.01501 | 8.1764-10 |
| 42 | Phosphoric Acid | H_3PO_4 to form K_2HPO_4 | | |
| | | P. T. S. | 0.02452 | 8.3896-10 |
| 43 | Potassium Acetate | $\text{KC}_2\text{H}_3\text{O}_2$ | 0.04906 | 8.6907-10 |
| 44 | Potassium Bicarbonate | KHCO_3 | 0.05006 | 8.6995-10 |
| 45 | Potassium Bitartrate | $\text{KHC}_4\text{H}_4\text{O}_6$ | 0.09407 | 8.9734-10 |
| 46 | Potassium Carbonate | K_2CO_3 | 0.03455 | 8.5384-10 |
| 47 | Potassium Citrate, anhydrous | $\text{K}_3\text{C}_6\text{H}_5\text{O}_7$ | 0.05106 | 8.7081-10 |
| 48 | Potassium Citrate, crystallized | $\text{K}_3\text{C}_6\text{H}_7\text{O} + \text{H}_2\text{O}$ | 0.05406 | 8.7329-10 |
| 49 | Potassium Hydroxide | KOH | 0.02806 | 8.4481-10 |
| 50 | Pot. & Sod. Tartrate, anhydrous | $\text{KNaC}_4\text{H}_4\text{O}_6$ | 0.05253 | 8.7204-10 |
| 51 | Pot. & Sod. Tartrate, crystallized | $\text{KNaC}_4\text{H}_4\text{O}_6 + 4\text{H}_2\text{O}$ | 0.07055 | 8.8485-10 |
| 52 | Santalol | $\text{C}_{15}\text{H}_{26}\text{O}$ | 0.11111 | 9.0457-10 |
| 53 | Sodium Acetate, anhydrous | $\text{NaC}_2\text{H}_3\text{O}_2$ | 0.04101 | 8.6129-10 |

LOGARITHMIC EQUIVALENTS (*Continued*).

| No. | Chemical. | Formula. | N/2 Equivalent Logarithm. | |
|-----|------------------------------------|-------------------------------------------------------------------|---------------------------|-----------|
| 54 | Sodium Acetate, crystallized | $\text{NaC}_2\text{H}_3\text{O}_2 + 3\text{H}_2\text{O}$ | 0.06804 | 8.8328—10 |
| 55 | Sodium Benzoate | $\text{NaC}_7\text{H}_5\text{O}_2$ | 0.07202 | 8.8574—10 |
| 56 | Sodium Bitartrate | $\text{NaHC}_4\text{H}_4\text{O}_6 + \text{H}_2\text{O}$ | 0.09503 | 8.9778—10 |
| 57 | Sodium Bicarbonate | NaHCO_3 | 0.04200 | 8.6232—10 |
| 58 | Sodium Borate, anhydrous | $\text{Na}_2\text{B}_4\text{O}_7$ | 0.05050 | 8.7033—10 |
| 59 | Sodium Borate, crystallized | $\text{Na}_2\text{B}_4\text{O}_7 + 10\text{H}_2\text{O}$ | 0.09554 | 8.9802—10 |
| 60 | Sodium Cacodylate, anhydrous | $\text{Na}(\text{CH}_3)_2\text{AsO}_2$ | 0.08000 | 8.9031—10 |
| 61 | Sodium Carbonate, anhydrous | Na_2CO_3 | 0.02650 | 8.4232—10 |
| 62 | Sodium Carbonate, monohydrated | $\text{Na}_2\text{CO}_3 + \text{H}_2\text{O}$ | 0.03100 | 8.4914—10 |
| 63 | Sodium Citrate, anhydrous | $\text{Na}_3\text{C}_6\text{H}_5\text{O}_7$ | 0.04301 | 8.6336—10 |
| 64 | Sodium Citrate, crystallized | $\text{Na}_3\text{C}_6\text{H}_5\text{O}_7 + 2\text{H}_2\text{O}$ | 0.04901 | 8.6903—10 |
| 65 | Sodium Glycerophosphate | $\text{Na}_2\text{C}_3\text{H}_7\text{PO}_6$ | 0.10805 | 8.0336—10 |
| 66 | Sodium Hydroxide | NaOH | 0.02000 | 8.3010—10 |
| 67 | Sodium Salicylate | $\text{NaC}_7\text{H}_5\text{O}_3$ | 0.08002 | 8.9032—10 |
| 68 | Sodium Tartrate, neutral | $\text{Na}_2\text{C}_4\text{H}_4\text{O}_6 + 2\text{H}_2\text{O}$ | 0.05752 | 8.7599—10 |
| 69 | Strontium Salicylate, anhydrous | $\text{Sr}(\text{C}_7\text{H}_5\text{O}_3)$ | 0.09043 | 8.9563—10 |
| 70 | Strontium Salicylate, crystallized | $\text{Sr}(\text{C}_7\text{H}_5\text{O}_3) + 2\text{H}_2\text{O}$ | 0.09943 | 8.9975—10 |
| 71 | Sulphuric Acid | H_2SO_4 | 0.02452 | 8.3896—10 |
| 72 | Sulphuric Anhydride | SO_3 | 0.02002 | 8.3014—10 |
| 73 | Tartaric Acid, crystallized | $\text{H}_2\text{C}_4\text{H}_4\text{O}_6$ | 0.03751 | 8.5741—10 |
| 74 | Trichloroacetic Acid | CCl_3COOH | 0.08170 | 8.9122—10 |
| 75 | Zinc Oxide | ZnO | 0.02034 | 8.3083—10 |

| No. | Chemical. | Formula | N/10 Equivalent Logarithm. | |
|-----|-----------------------------------------------|--------------------------------------------------------------------------------------|----------------------------|-----------|
| 1 | Acetone | | 0.0009675 | 7.9857—10 |
| 2 | Aconite ether soluble alkaloids | | 0.0645 | 8.8096—10 |
| 3 | Aconitine | $\text{C}_{34}\text{H}_{47}\text{O}_{11}\text{N}$ | 0.06454 | 8.8099—10 |
| 4 | Allyl-iso-thiocyanate | $\text{C}_3\text{H}_5\text{SCN}$ | 0.004956 | 7.6951—10 |
| 5 | Ammonium Gas | NH_3 | 0.0017033 | 7.2311—10 |
| 6 | Ammonium Benzoate | $\text{NH}_4\text{C}_7\text{H}_5\text{O}_2$ | 0.01391 | 8.1433—10 |
| 7 | Ammonium Bromide | NH_4Br | 0.009796 | 7.9911—10 |
| 8 | Ammonium Chloride | NH_4Cl | 0.005350 | 7.7284—10 |
| 9 | Ammonium Iodide | NH_4I | 0.014496 | 8.1614—10 |
| 10 | Ammonium Salicylate | $\text{NH}_4\text{C}_7\text{H}_5\text{O}_3$ | 0.015508 | 8.1906—10 |
| 11 | Antimony and Potassium Tartrate, crystallized | $\text{K}(\text{SbO})\text{C}_4\text{H}_4\text{O}_6 + \frac{1}{2}\text{H}_2\text{O}$ | 0.016617 | 8.2206—10 |
| 12 | Arsenic, in arsenous compounds | As | 0.003748 | 7.5737—10 |
| 13 | Arsenic Iodide | $\text{AsI}_3? \text{AsI}_5$ | 0.022786 | 8.3577—10 |
| 14 | Arsenic Trioxide (Arsenous Acid) | As_2O_3 | 0.004948 | 7.6944—10 |
| 15 | Arsenous Iodide | AsI_3 | 0.015191 | 8.1815—10 |
| 16 | Atropine | $\text{C}_{17}\text{H}_{23}\text{O}_3\text{N}$ | 0.028919 | 8.4612—10 |
| 17 | Barium Hydroxide | $\text{Ba}(\text{OH})_2 + 8\text{H}_2\text{O}$ | 0.015776 | 8.1981—10 |
| 18 | Benzoic Acid | $\text{C}_7\text{H}_6\text{O}_2$ | 0.015776 | 8.1981—10 |
| 19 | Betacaine Hydrochloride | $\text{C}_{15}\text{H}_{21}\text{ON} \cdot \text{HCl}$ | 0.028365 | 8.4529—10 |
| 20 | Bromine | Br | 0.007992 | 7.9026—10 |
| 21 | Brucine | $\text{C}_{23}\text{H}_{26}\text{O}_4\text{N}_2$ | 0.039423 | 8.5957—10 |
| 22 | Calcium Bromide, anhydrous | CaBr_2 | 0.0099955 | 7.9998—10 |
| 23 | Calcium Bromide, crystallized | $\text{CaBr}_2 + 2\text{H}_2\text{O}$ | 0.0011798 | 7.0719—10 |
| 24 | Calcium Carbonate | CaCO_3 | 0.0050035 | 7.6993—10 |
| 25 | Calcium Chloride, anhydrous | CaCl_2 | 0.00555 | 7.7443—10 |
| 26 | Calcium Chloride | $\text{CaCl}_2 + 2\text{H}_2\text{O}$ | 0.0073511 | 7.8664—10 |
| 27 | Calcium Hydroxide | $\text{Ca}(\text{OH})_2$ | 0.037045 | 7.5687—10 |
| 28 | Calcium Hypophosphite | $\text{Ca}(\text{PH}_2\text{O}_2)_2$ | 0.002836 | 7.4527—10 |
| 29 | Calcium Oxide | CaO | 0.0028035 | 7.4478—10 |

LOGARITHMIC EQUIVALENTS (*Continued*).

| No. | Chemical. | Formula. | N/10 Equivalent Logarithm. | |
|-----|-------------------------------------|-------------------------------------------------------------------------------|----------------------------|-----------|
| 30 | Calcium Sulphide, crude | CaS | 0.003607 | 7.5571—10 |
| 31 | Cephaeline | C ₁₄ H ₁₉ O ₂ N | 0.023316 | 8.3678—10 |
| 32 | Chlorine | Cl | 0.003546 | 7.5497—10 |
| 33 | Chromium Trioxide | CrO ₃ | 0.003333 | 7.5228—10 |
| 34 | Cinchonidine | C ₁₉ H ₂₂ ON ₂ | 0.029420 | 8.4686—10 |
| 35 | Cinchonine | C ₁₉ H ₂₂ ON ₂ | 0.029420 | 8.4686—10 |
| 36 | Cocaine | C ₁₇ H ₂₁ O ₄ N | 0.030318 | 8.4817—10 |
| 37 | Coniine | C ₈ H ₁₇ N | 0.012715 | 8.1045—10 |
| 38 | Copper Sulphate, anhydrous | CuSO ₄ | 0.015964 | 8.1045—10 |
| 39 | Copper Sulphate, crystallized | CuSO ₄ + 5H ₂ O | 0.024972 | 8.3974—10 |
| 40 | Emetine | C ₁₆ H ₂₁ O ₂ N | 0.024718 | 8.3931—10 |
| 41 | Ferrous Bromide | FeBr ₂ | 0.010784 | 8.0317—10 |
| 42 | Ferrous Carbonate | FeCO ₃ | 0.011584 | 8.0637—10 |
| 43 | Ferrous Iodide | FeI ₂ | 0.015484 | 8.1897—10 |
| 44 | Ferrous Oxide | FeO | 0.007184 | 7.8563—10 |
| 45 | Ferrous Sulphate, anhydrous | FeSO ₄ | 0.015191 | 8.1815—10 |
| 46 | Ferrous Sulphate, crystallized | FeSO ₄ + 7H ₂ O | 0.027802 | 8.4440—10 |
| 47 | Hydrastine | C ₂₁ H ₂₁ O ₆ N | 0.038318 | 8.5834—10 |
| 48 | Hydrochloric Acid | HCl | 0.003647 | 7.5619—10 |
| 49 | Hydrocyanic Acid, 1st ppt. | HCN | 0.005404 | 7.7327—10 |
| 50 | Hydrocyanic Acid, KCrO ₄ | HCN | 0.002702 | 7.4316—10 |
| 51 | Hydrobromic Acid | HBr | 0.008093 | 7.9081—10 |
| 52 | Hydriodic Acid | HI | 0.012793 | 8.1069—10 |
| 53 | Hydrogen Dioxide | H ₂ O ₂ | 0.0017008 | 7.2306—10 |
| 54 | Iodine | I | 0.012692 | 8.1035—10 |
| 55 | Iodine (Thymol Iodide) | I | 0.002115 | 7.3253—10 |
| 56 | Iron | Fe | 0.002792 | 7.4458—10 |
| 57 | Iron in Ferrous Compounds | Fe | 0.005584 | 7.7469—10 |
| 58 | Iron, in Ferric Compounds | Fe | 0.005584 | 7.7469—10 |
| 59 | Ipecac ethl. | Ether soluble alkaloids | 0.0240 | 8.3802—10 |
| 60 | Lactic Acid | HC ₃ H ₅ O ₃ | 0.009005 | 7.9544—10 |
| 61 | Lead | Pb | 0.010355 | 8.0151—10 |
| 62 | Lead Acetate | Pb(C ₂ H ₃ O ₂) ₂ | 0.016257 | 8.2110—10 |
| 63 | Lead Oxide | PbO | 0.011155 | 8.0476—10 |
| 64 | Lead Peroxide | PbO ₂ | 0.011955 | 8.0778—10 |
| 65 | Lead Subacetate | Pb ₂ O(C ₂ H ₃ O ₂) ₂ | 0.013706 | 8.1370—10 |
| 66 | Lithium Bromide | LiBr | 0.008686 | 7.9388—10 |
| 67 | Lithium Chloride | LiCl | 0.004240 | 7.6274—10 |
| 68 | Manganese Dioxide | MnO ₂ | 0.0043465 | 7.6382—10 |
| 69 | Mercuric Iodide | HgI ₂ | 0.022722 | 8.3562—10 |
| 70 | Mercuric Nitrate | Hg(NO ₃) ₂ | 0.016231 | 8.2103—10 |
| 71 | Mercury Oxide | HgO | 0.01083 | 8.0347—10 |
| 72 | Mercurous Chloride | HgCl | 0.023606 | 8.3731—10 |
| 73 | Mercurous Iodide | HgI | 0.032752 | 8.5152—10 |
| 74 | Mercury | Hg | 0.01003 | 8.0012—10 |
| 75 | Mercury (in mercurous compounds) | Hg | 0.02006 | 8.3023—10 |
| 76 | Morphine, anhydrous | C ₁₇ H ₁₉ O ₃ N | 0.028516 | 8.4551—10 |
| 77 | Morphine, crystallized | C ₁₇ H ₁₉ O ₃ N + H ₂ O | 0.030318 | 8.4817—10 |
| 78 | Mydriatic alkaloids, combined | Combined alkaloids | 0.02892 | 8.4611—10 |
| 79 | Nux Vomica | Combined alkaloids | 0.0364 | 8.5611—10 |
| 80 | Orcin | C ₇ H ₆ (OH) ₂ | 0.002068 | 7.3156—10 |
| 81 | Oxalic Acid | H ₂ C ₂ O ₄ + 2H ₂ O | 0.0063025 | 7.7996—10 |
| 82 | Oxygen | O | 0.0008 | 6.9031—10 |

LOGARITHMIC EQUIVALENTS (*Continued*).

| No. | Chemical. | Formula. | N/10 Equivalent Logarithm | |
|-----|---------------------------------------|-------------------------|---------------------------|-----------|
| 83 | Phenol | C_6H_5OH | 0.001568 | 7.1953—10 |
| 84 | Phosphoric Acid | H_3PO_4 | 0.0032687 | 7.5144—10 |
| 85 | Pilocarpine Physostigmine | $C_{13}H_{21}O_2N_3$ | 0.027520 | 8.4396—10 |
| 86 | Pilocarpine | $C_{11}H_{16}O_2N_2$ | 0.020815 | 8.3185—10 |
| 87 | Potassium Bitartrate | $KHC_4H_4O_6$ | 0.018814 | 8.2744—10 |
| 88 | Potassium Bromate | $KBrO_3$ | 0.0027837 | 7.4446—10 |
| 89 | Potassium Bromide | KBr | 0.011902 | 8.0755—10 |
| 90 | Potassium Chloride | KCl | 0.007456 | 7.8726—10 |
| 91 | Potassium Chlorate | $KClO_3$ | 0.0020427 | 7.3102—10 |
| 92 | Potassium Cyanide, 1st ppt. | KCN | 0.013022 | 8.1145—10 |
| 93 | Potassium Dichromate | $K_2Cr_2O_7$ | 0.0049033 | 7.6905—10 |
| 94 | Potassium Hydroxide | KOH | 0.005611 | 7.7491—10 |
| 95 | Potassium Hypophosphite | KPH_2O_2 | 0.003472 | 7.5406—10 |
| 96 | Potassium Iodide | KI | 0.016602 | 8.2201—10 |
| 97 | Potassium Nitrate | KNO_3 | 0.010111 | 8.0047—10 |
| 98 | Potassium Permanganate | $KMnO_4$ | 0.0031606 | 7.4998—10 |
| 99 | Potassium Sulphite, crystallized | $K_2SO_3 + 2H_2O$ | 0.009715 | 7.9874—10 |
| 100 | Potassium Sulphocyanate | $KCNS$ | 0.009718 | 7.9876—10 |
| 101 | Quinine, anhydrous | $C_{20}H_{24}O_2N_2$ | 0.032421 | 8.5107—10 |
| 102 | Resorcinol | $C_6H_3(OH)_2$ | 0.001834 | 7.2634—10 |
| 103 | Salicylic Acid | $HC_6H_3O_3$ | 0.013805 | 8.1402—10 |
| 104 | Silver | Ag | 0.010788 | 8.0331—10 |
| 105 | Silver Nitrate | $AgNO_3$ | 0.016989 | 8.2227—10 |
| 106 | Silver Oxide | Ag_2O | 0.011588 | 8.0641—10 |
| 107 | Sodium Arsenate, anhydrous | Na_2HAsO_4 | 0.0092985 | 7.9684—10 |
| 108 | Sodium Arsenate, crystallized | $Na_2HAsO_4 + 7H_2O$ | 0.015604 | 8.1931—10 |
| 109 | Sodium Bisulphite | $NaHSO_3$ | 0.005204 | 8.7163—10 |
| 110 | Sodium Bromide | $NaBr$ | 0.010292 | 8.0123—10 |
| 111 | Sodium Carbonate, anhydrous | Na_2CO_3 | 0.00530 | 7.7243—10 |
| 112 | Sodium Chloride | $NaCl$ | 0.005846 | 7.7668—10 |
| 113 | Sodium Chlorate | $NaClO_3$ | 0.0017743 | 7.2490—10 |
| 114 | Sodium Cyanide, 1st ppt | $NaCN$ | 0.009802 | 7.9913—10 |
| 115 | Sodium Hydroxide | $NaOH$ | 0.004001 | 7.6022—10 |
| 116 | Sodium Hypophosphite | $NaPH_2O_2 + H_2O$ | 0.0035357 | 7.6022—10 |
| 117 | Sodium Iodide | NaI | 0.014992 | 8.1759—10 |
| 118 | Sodium Nitrate | $NaNO_3$ | 0.008501 | 7.9295—10 |
| 119 | Sodium Nitrite | $NaNO_2$ | 0.0034505 | 7.5379—10 |
| 120 | Sodium Oxalate | $Na_2C_2O_4$ | 0.0067 | 7.8261—10 |
| 121 | Sodium Phenolsulphonate, anhydrous | $NaC_6H_4SO_3S$ | 0.004903 | 7.6905—10 |
| 122 | Sodium Phenolsulphonate, crystallized | $NaC_6H_4SO_3S + 2H_2O$ | 0.0058035 | 7.7637—10 |
| 123 | Sodium Phosphate, anhydrous | Na_2HPO_4 | 0.004735 | 7.6754—10 |
| 124 | Sodium Phosphate, crystallized | $Na_2HPO_4 + 12H_2O$ | 0.011941 | 8.760—10 |
| 125 | Sodium Sulphite | Na_2SO_3 | 0.00634 | 7.8021—10 |
| 126 | Sodium Thiosulphate, anhydrous | $Na_2S_2O_3$ | 0.015814 | 8.1990—10 |
| 127 | Sodium Thiosulphate, crystallized | $Na_2S_2O_3 + 5H_2O$ | 0.024822 | 8.3949—10 |
| 128 | Strontium Bromide | $SrBr_2 + 6H_2O$ | 0.017779 | 8.2500—10 |
| 129 | Strontium Chloride | $SrCl_2 + 6H_2O$ | 0.013332 | 8.1249—10 |
| 130 | Strontium Iodide | $SrI_2 + 6H_2O$ | 0.022479 | 8.3517—10 |
| 131 | Strychnine | $C_{21}H_{27}O_2N_2$ | 0.033420 | 8.5240—10 |
| 132 | Sulphuric Acid | H_2SO_4 | 0.0049045 | 7.6906—10 |
| 133 | Sulphur Dioxide | SO_2 | 0.0032035 | 7.5056—10 |
| 134 | Zinc Chloride | $ZnCl_2$ | 0.0068145 | 7.8334—10 |
| 135 | Zinc Oxide | ZnO | 0.0040685 | 7.6094—10 |

LOGARITHMIC EQUIVALENTS (*Concluded*).

| No. | Chemical. | Formula. | N/50 Equivalent Logarithm | |
|-----|------------------------|---------------------------|---------------------------|-----------|
| 1 | Aconitine | $C_{34}H_{47}O_{11}N$ | 0.012097 | 8.1109—10 |
| 2 | Atropine | $C_{17}H_{23}O_3N$ | 0.0057838 | 7.7622—10 |
| 3 | Cinchona | Combined alkaloids of | 0.0061841 | 7.7913—10 |
| 4 | Cinchonidine | $C_{19}H_{22}ON_2$ | 0.005884 | 7.7697—10 |
| 5 | Cinchonine | $C_{19}H_{22}ON_2$ | 0.005884 | 7.7697—10 |
| 6 | Cocaine | $C_{17}H_{22}ON_2$ | 0.0060636 | 7.7828—10 |
| 7 | Coniine | $C_8H_{17}N$ | 0.002543 | 7.4053—10 |
| 8 | Hydrastine | $C_{21}H_{21}O_6N$ | 0.0076636 | 7.8844—10 |
| 9 | Ipecac | Combined alkaloids | 0.0049034 | 7.6815—10 |
| 10 | Morphine, anhydrous | $C_{17}H_{19}O_3N$ | 0.0057032 | 7.7561—10 |
| 11 | Morphine, crystallized | $C_{17}H_{19}O_3N + H_2O$ | 0.0060636 | 7.7828—10 |
| 12 | Physostigmine | $C_{16}H_{21}O_2N_3$ | 0.005504 | 7.7407—10 |
| 13 | Pilocarpine | $C_{11}H_{16}O_2N_2$ | 0.004163 | 7.6194—10 |
| 14 | Quinine | $C_{20}H_{24}O_2N_2$ | 0.0062342 | 7.7983—10 |
| 15 | Strychnine | $C_{21}H_{22}O_2N_2$ | 0.006684 | 7.8251—10 |
| 16 | Potassium Bitartrate | $KHC_4H_4O_6$ | 0.0037628 | 7.5755—10 |
| 17 | Potassium Hydroxide | KOH | 0.0011222 | 7.0500—10 |
| 18 | Sodium Hydroxide | NaOH | 0.0008002 | 6.9032—10 |
| 19 | Sulphuric Acid | H_2SO_4 | 0.0009809 | 6.9916—10 |

DEPARTMENT OF PHARMACY,
UNIVERSITY OF NEBRASKA.

MEETING OF AMERICAN METRIC ASSOCIATION.

A metric meeting given by the New York Academy of Sciences and the American Metric Association was held at the American Museum of Natural History, New York, on Monday evening, November 4th.

The speakers were Dr. Robert Lowie, who presented the development of numbers and measurements from the times of primitive peoples to modern civilization, describing interestingly the early use of numbers and the mathematical notion in folk-lore; Mr. Howard Richards, Jr., who discussed the right usage of metric weights and measures; and Dr. Chester A. Reeds, who gave a geologist's estimation of the decimal method of computation in comparison with the systems used in America.

These papers were discussed by Dr. William Jay Schieffelin, Mr. Maximilian Toch, Mr. A. A. Cary, Dr. H. V. Army and Mr. John Francis.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

TO THE BRANCHES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

On account of the campaign for the Fourth Liberty Loan, meetings of Branches were not held. Soon thereafter the prevalence of influenza interfered with the meetings, but it is hoped that the Branches will soon again begin holding their monthly meetings regularly. The JOURNAL will be pleased to receive the papers read at the Branches and recommended for publication.

Druggists of Wilkes-Barre, Pa., and vicinity organized the Luzerne County Branch of the American Pharmaceutical Association with fifty-one members. This shows the possibility of establishing many more Branches throughout the country, and the idea of inviting the pharmacists of the county wherein the Branch is to be organized to affiliate is a good one, and makes it possible to discuss business matters in which not only the druggists of one city are interested, but throughout the county. There are many topics of particular interest at the present time, especially in view of the

fact that the beginning of the end of the war is at hand.

THE JOURNAL OF THE A. PH. A.
253 Bourse Bldg., Philadelphia, Pa.

CHICAGO.

The invitations to the ninety-seventh monthly meeting of the Chicago Branch of the American Pharmaceutical Association, to be held at the City Club October 17th, 8:00 P.M., announced as the topic of the meeting "Organized Pharmacy Is Doing Its War 'Bit' in a Great Big Way."

The presidents or secretaries of ten pharmaceutical organizations had been asked to respond with a ten-minute report on the war activities of their organization. Many acceptances had been received and arrangements completed for a dinner to precede the meeting when announcement was made by our State authorities that all public gatherings must be prohibited on account of the spread of the influenza epidemic. Therefore this meeting has been indefinitely postponed by order of the Executive Committee of the Chicago Branch. E. N. GATHERCOAL, *Secretary*.

CORRESPONDENCE

CORRECTION FOR ARTICLE ON SILVER COMPOUNDS.

October 24, 1918.

EDITOR JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

Correction for article on Silver Compounds, JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, August 1918, page 679, first and second lines of paragraph headed "Technic," should read:

"One Cc. of a 1:10 solution of the silver salt is diluted with 10 Cc. of distilled water and shaken with 0.5 Gm. of 'Lloyd's Reagent,' etc."

Very truly yours,

(Signed) TORALD SOLLMANN.

Cleveland, October 24, 1918.

DEFERRED CLASSIFICATION FOR PHARMACISTS.

EDITOR JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

I am happy to be able to state that as the result of an effort on my part as per correspondence which I give below, I have secured a decision by the Surgeon General and the Provost Marshal General Crowder, to the effect that drug clerks and registered pharmacists be not drafted into the Army during the influenza epidemic, and that thereafter a deferred classification should be given them if they can show, as practically all of them can, that their position is "necessary to the enterprise in which they are engaged." This is the first successful effort made to have pharmacy recognized as an essential profession and industry, and this should be promptly followed up and given all the publicity possible, so as to get behind our movement for a pharmacy corps public sentiment through the press:

"Baltimore, October 10th, 1918.

"TO THE SURGEON GENERAL'S OFFICE,

"WASHINGTON, D. C.

"GENTLEMEN:

"On behalf of the pharmacists and pharmaceutical colleges of this country I am again addressing you in this emergency brought to the attention of the people and the medical profession by the epidemic now raging all over the land. I appeared before your office with seventeen other representative gentlemen representing the National Drug Trade Conference in behalf of recognition of pharmacy as an essential industry and profession, on September 26th, and were heard by General Richard and Colonel Darnell. You refused to recognize pharmacy as an essential industry and as a needed branch in the army establishment. Today the country is confronted by a demand for pharmacists' skill and services unprecedented in its history. Pharmacies by the hundred are being closed because their owners or their registered clerks are being drafted into the army. The result is, pharmacies by the hundreds everywhere, are overrun with prescriptions for the epidemic and they have to close their stores because they cannot handle the work, and many are working all night and day. Therefore, the Provost Marshal, under the advice of the Surgeon General's office, should give registered pharmacists in the draft deferred classification to enable the civilian population to secure their medicines. Hundreds and thousands of patients are unable to procure medicines during the past few days and more and more pharmacists are lying down sick from overwork and worry which is fast bringing on a crisis all over the east. It would seem that pharmacy is today being shown to be one of the direst needs of the public and the medical profession to help quell the epidemic and save the lives of our people. Will the Surgeon General's office still refuse to recognize the need of the people today for pharmaceutical service? Please inquire of health boards in any of our cities and let them tell you of the deplorable conditions in the dispensing of medicines. Dr. John D. Blake, the health commissioner of Baltimore, told us today that he felt the Surgeon General's office had made a mistake in refusing to recognize pharmacy, and should do so, and induce Provost Marshal Crowder to release many of the pharmacists in the draft for return to their stores to help out the fighting of this epidemic in this country by giving them deferred classification. I am enclosing a clipping from today's *Baltimore Sun* on the subject. The Educational Board also should recognize pharmacy students as worthy of forming, if necessary, in conjunction with other units military organizations, so that our colleges of pharmacy will not have to close and cut off the future supply of pharmacists so urgently needed at all times for the public health, and especially so badly needed now.

"Respectfully submitted,

"(Signed) A. R. L. DOHME."

A copy of this same letter was simultaneously sent to Provost Marshal General Crowder, Surgeon General Rupert Blue of the Public Health Service, and Prof. Charles E. Munroe, Chairman of the Board of Educational Instruction.

The following reply was received under date of October 16th from the Provost Marshal General:

"DR. A. R. L. DOHME,

"MEMBER EXECUTIVE COMMITTEE,

"AMERICAN DRUG MANUFACTURERS ASSOCIATION,

"CR. SHARP & DOHME, S. W. COR PRATT & HOWARD STS.,

"BALTIMORE, MARYLAND.

"DEAR SIR:

"I have read with interest copy of your letter of October 10th, addressed to the Surgeon General's Office, in which the importance of pharmacy as a necessary industry is submitted. In order to overcome the situation brought about as a result of drug clerks being drafted into the Army and the heavy demands that are made upon pharmacists at the present time, it has been suggested that this office release many of the pharmacists who have been called to the colors and grant them a deferred classification so that they may resume their civilian employment and assist in fighting the epidemic.

"Upon induction of a registrant into military service the jurisdiction of the Selective Service Law and of this office terminates, and all questions pertaining to the release of soldiers from the Army are consequently for the determination of the military authorities. Hence the suggestion advanced by the Health Commissioner of Baltimore could not be put into effect by this office.

"As far as the selection of men for military service is concerned, the matter lies entirely in the hands of District Boards, which are authorized by the Selective Service Law, to consider claims for deferred classification based upon engagement in industries, occupations, or employments. The recognition of a particular trade or business as an 'essential' industry, occupation or employment is not binding upon District Boards which, in considering claims for deferment based on industrial or occupational grounds, must find, first: whether the industry, occupation or employment is 'necessary' to the maintenance of the Military Establishment, the effective operation of the military forces, or the maintenance of national interest during the emergency, and, second, whether the individual himself is, within the meaning of the Law, 'necessary' to the enterprise in which he is engaged.

"E. H. CROWDER,

"Provost Marshal General.

"(Signed) By ROSCOE S. CONKLIN,
Lieut. Colonel, J. A., Chief, Classification Division."

and from the Surgeon General's office under date of October 18th has come in response to my letter the statement that the Surgeon General's office has recommended to the Provost Marshal that drug clerks and pharmacists be not drafted into the Army during the influenza epidemic.

I feel that this information should go out at once through all pharmaceutical journals to the pharmacists of the country so that they may be benefited promptly by the decision of the Army chiefs. While I have had no reply yet from the Educational Committee, I have heard that colleges of pharmacy are being taken care of by permitting pharmacy students to join Army Reserve Units at educational institutions and I hope that every college of pharmacy will not fail to use this information to the utmost in helping itself to maintain its position and courses, and induce young men to continue to pursue its courses, for provision for future pharmacists must be made in the interest of public health and welfare.

If we had adopted and put into effect federated pharmacy with a central office and an efficient, well-paid publicity department, we could have handled this epidemic and draft situation much more promptly and effectively.

Our hope now is that pharmacists will realize the value of coöperation and federation, and not let the narrow views of a certain few men high in authority in certain associations, prevent the accomplishment of a much-needed federated effort and organization in pharmacy.

I am also informed that many of the pharmacists in the army camps among the drafted men have returned to their homes for service in this epidemic emergency; at least that is the case at Camp Meade, here near Baltimore.

Very truly yours,

Baltimore, October 23, 1918

(Signed)

A. R. L. DOHME.

REPORT OF CONFERENCE ON SPECIAL BULLETIN ON PROGRAM IN PHARMACY.

TO THE PHARMACEUTICAL PROFESSION OF AMERICA:

Under date of October 1, 1918, the War Department's Committee on Education and Special Training issued a Special Bulletin on Program in Pharmacy. This program is being given publicity in the current pharmaceutical press and will in this way be called to the attention of all interested. However, Dr. E. L. Newcomb, of the *Northwestern Druggist*, has suggested and others have requested, that an official statement be made concerning a Conference recently held in Washington relative to this matter. This conference was called by the Committee on Education and Special Training through the Educational Director, Dr. R. C. Maclaurin.

Delegates from a number of representative colleges were requested by wire to meet with the War Committee on September 20th, at 10:00 A.M., Old Land Office Building, Washington, to discuss the relation of students in the Colleges of Pharmacy to the S. A. T. C. The Institutions asked to send delegates were the Massachusetts College of Pharmacy, The University of North Carolina, the School of Pharmacy of the Medical College of Virginia, Columbia University, Western Reserve University, Purdue University and the Universities of Michigan, Minnesota and Nebraska. All of these institutions were represented at the Conference except the first two named.

At the time and place appointed the delegates met representatives of the Educational Committee. Doctor Maclaurin briefly and clearly announced the reasons for the call to Washington. The following is the substance of his statement.

The War Department had decided for the efficiency of the Army Medical Service to prepare for a pharmacy unit in the S. A. T. C. Furthermore, it is the intention of the War Department to retain a sufficient number of pharmacy students in school so that the civilian population shall not suffer because of a lack of properly qualified pharmacists. He stated that no school could be considered as an S. A. T. C. institution which did not require at least a four-year high school course for entrance or could come to such a requirement on very short notice, and furthermore, schools of a purely commercial type would not be considered. The amount of military instruction and training which would be required by the War Department of students in the S. A. T. C. was stated and Dr. Maclaurin then asked that the representatives present organize as a committee and work out a pharmacy program running through eight quarters of three months each, which would, in the opinion of the committee, best accomplish what the War Department has in mind to do. The Program which was worked out is issued as Special Bulletin on Program in Pharmacy. (See next report.)

Dr. Maclaurin also asked the committee to give information concerning the Colleges of Pharmacy which would help the Committee on Special Training to determine the fitness of the various schools to become S. A. T. C. institutions. This the Committee did to the best of its ability, but the information given was only for the purpose of giving the War Committee something tangible to build upon. It is safe to say that the college representatives felt when confronted by this problem, as never before, what it would mean to pharmaceutical education if we could have had the results of a Carnegie Foundation investigation and classification to present to the War Committee.

The Chairman wishes to say in closing that the attitude of Dr. Maclaurin and the other members of the War Committee toward the representatives of the Colleges was courteous, dignified, respectful and, perhaps above all, was sympathetically helpful in the problems they were asked to solve. We feel that one more incident has occurred which will assure to professional pharmacy a greater future.

(Signed) RUFUS A. LYMAN, *Chairman*

The Committee:

GEO. F. DIEKMAN, 115 W. 68th St., New York City.

CHAS. B. JORDAN, Purdue University, La Fayette, Ind.

HENRY KRAEMER, University of Michigan, Ann Arbor, Mich.

WORTLEY F. RUDD, Medical College of Virginia, Richmond, Va.

F. J. WULLING, University of Minnesota, Minneapolis, Minn.

EDWARD SPEASE, Secretary, Western Reserve University, Cleveland, Ohio

RUFUS A. LYMAN, *Chairman*, University of Nebraska, Lincoln, Nebr.

THE UNIVERSITY OF NEBRASKA,

LINCOLN, NEB., October 25, 1918.

JOURNAL OF THE

WAR DEPARTMENT.

COMMITTEE ON EDUCATION AND SPECIAL TRAINING.

SPECIAL BULLETIN ON PROGRAM IN PHARMACY.

The program here presented is not prescribed, but is an example of what will be approved. It is intended to indicate how existing programs may be modified by elimination and condensation so as to meet the needs of the present emergency. The program covers eight terms of twelve weeks, but it must not be inferred that every student entering on such a course will be kept at college until he completes it. The time that he will be permitted to pursue the course will depend on the needs of the service and the academic record of the student. In addition to the instruction indicated in the program, eleven hours per week of military instruction are prescribed for the first three terms of the program, and six hours per week for the remainder of the program. The total time to be devoted to military and academic instruction, including examinations, lectures, recitations, laboratory work and supervised study, is 53 hours per week. The hours set forth in the program represent the total time devoted each week to the subjects named. The relation of the time given to study to that assigned to lectures, recitations and laboratory work varies considerably with the nature of the subject, but on the average the former is not more than half of the total time allotted. The subject, War Issues, which must be combined with English Composition, is, with the exceptions indicated in Section 26 of the Regulations of the S. A. T. C., prescribed for three terms with nine hours per week for lectures, recitations and study.

APPROVED PHARMACY WAR COURSE.

| | Hours per week. |
|-----------------------------------------|-----------------|
| FIRST TERM. | |
| Chemistry..... | 12 |
| Pharmacy..... | 9 |
| Botany..... | 6 |
| Physiology and Hygiene..... | 6 |
| War Aims and English Composition..... | 9 |
| SECOND TERM | |
| Chemistry .. | 12 |
| Pharmacy..... | 9 |
| Pharmacognosy..... | 6 |
| Physiology and Hygiene..... | 6 |
| War Aims and English Composition..... | 9 |
| THIRD TERM. | |
| Chemistry..... | 12 |
| Pharmacy..... | 9 |
| Pharmacognosy..... | 6 |
| Pharmacology and Posology..... | 6 |
| War Aims and English Composition..... | 9 |
| FOURTH TERM. | |
| Chemistry..... | 15 |
| Pharmacy..... | 15 |
| Pharmacology and Posology..... | 5 |
| Bacteriology..... | 12 |
| FIFTH TERM. | |
| Chemistry | 15 |
| Pharmacy and Dispensing | 15 |
| Bacteriology | 12 |
| Pharmacology and Posology | 5 |
| SIXTH TERM. | |
| Chemistry..... | 15 |
| Pharmacy and Dispensing | 24 |
| Preparation of Diagnostic Reagents..... | 5 |
| First Aid | 3 |

| SEVENTH TERM. | | Hours per week. |
|------------------------------|--|-----------------|
| Chemistry..... | | 15 |
| Pharmacy and Dispensing..... | | 15 |
| Pharmacopoeial Assay..... | | 12 |
| Urinalysis..... | | 5 |
| EIGHTH TERM. | | |
| Chemistry..... | | 15 |
| Pharmacy and Dispensing..... | | 23 |
| Applied Microscopy..... | | 9 |

COMMITTEE ON EDUCATION AND SPECIAL TRAINING.

By R. C. MACLAURIN,

Educational Director, Collegiate Section.

October 1, 1918.

AMERICANIZATION OF FORMER ENEMY-OWNED CONCERNS.

Many inquiries regarding the status of the Bayer Company and other enemy-owned concerns taken over by the Alien Property Custodian and the ultimate disposal of the money received from the sale of such concerns have come to the Alien Property Custodian's office. In order to clear up what seems to be a general misunderstanding regarding the functions of this office and the scope of its work, A. Mitchell Palmer, Alien Property Custodian, has made the following statement:

"The office of Alien Property Custodian was created by the 'Trading with the Enemy Act,' which was approved October 6, 1917. Under the provision of this Act, the Alien Property Custodian is directed to hold, administer and account, under the general direction of the President, for all enemy property he has taken over. The Act provides that after the end of the war, 'any claim of any enemy or of an ally of enemy to any money or other property received and held by the Alien Property Custodian, or deposited in the United States Treasury, shall be settled as Congress shall direct.' The Act also directs the Alien Property Custodian to deposit in the Treasury of the United States the proceeds of the sale of any property in his custody, to be invested in bonds.

"It can readily be seen therefore, that the functions of the Alien Property Custodian are merely those of a trustee, that all enemy money and property taken over by him is held in trust, and that Congress has reserved to itself the final disposition of such property.

"The Bayer Company, like all other companies taken over by me, is not now enemy-owned, and never will be enemy-owned again. All the stock is now held by the Alien Property Custodian representing the United States Government, and it is being operated by one hundred percent Americans as an American concern. The Bayer Company will be sold at public auction on December 3rd to American citizens only. Before the sale is finally consummated by me, it will be passed upon by the Advisory Committee, of which Otto T. Bannard, of New York, is Chairman.

"This course will be followed with each of the two hundred or more concerns which are now in my custody. I am going to put upon the auction block every one of the great industries in America, which formerly were German-owned, and sell them to American citizens.

"The policy of the Government, as fixed by the Act of Congress, is to sell these properties to American citizens as going concerns for fair and adequate values, and I would not be performing my duty in the carrying out of that policy if I did not operate the properties, pending sale, in the same efficient and profitable manner that they have heretofore been operated. If these properties are destroyed, there will be nothing to sell to American citizens.

"The Americanization of the former enemy-owned concerns in my custody is a big task, and it requires the heartiest coöperation of the business men of this country to be successful. The German agents have had their hands on practically every important American industry. They acquired large interests in the chemical and drug, the lumber, the dyestuff, the metal, the shipping, the textiles, the woolen, the cotton, and practically every other vital industry in this country. The value of the German ownership in these concerns is upward of three hundred million dollars. I propose to wipe out every trace of this German ownership by selling these properties to one hundred percent Americans.

"On December 4th, Heyden Chemical Works, at Garfield, N. J., will be sold at public auction."

COMMITTEE REPORTS

REPORT OF THE SUB COMMITTEE OF THE A. P. H. A., OF THE JOINT COMMITTEE ON NOMENCLATURE OF CULTIVATED PLANTS.*

The catalogue of scientific and popular names of shrubs and trees that was published last year by the Joint Committee, and copies of which were distributed at the preceding meeting of this Association, has accomplished considerable good. It did not adhere strictly to proper rules of nomenclature, because the Committee was obliged to compromise with a purely commercial element that was not sufficiently considerate of the just claims of science upon those whose business success was made possible by the benefits that science had conferred upon them. Nevertheless, even this element conceded something, so that a step was taken in the direction of correct nomenclature.

Another result attained was that of forcing consideration and discussion of the principles of nomenclature, even upon those who are opposed to them. If we can once get a question of right and wrong up for discussion, we may confidently depend upon the correct side to gain in strength, however slowly, as the discussion proceeds.

A third result has been that of securing some uniformity in the matter of violations of principle. If people are to violate a rule, there is at least a practical advantage in getting them to agree on a single incorrect form, thus lessening confusion, costly mistakes and discomforting disputes.

It should therefore be accepted that the first work of the Committee has brought forth valuable fruits.

It is planned to go ahead with this work along the same lines, taking up another group of plants, the nomenclature of which is in great disorder. Much work in this direction has already been done since our last meeting by individuals and sub-committees and the plans for future work are of a very definite character. I will say now as I said last year, that the great majority of plants under consideration by the Committee have no direct application to medicine or pharmacy, but that both professions, and especially pharmacy, have a strong indirect interest in securing general accuracy and stability in plant names, and I trust that the Association will not take a narrow view of its obligations but will continue to cooperate in this work, the results of which will be monumental in applied botany.

I would like to refer especially to the work of my colleague, Mr. Farwell, in this bibliographical enterprise. He is exceptionally favored by having access to extensive library and herbarium facilities and has a keen interest and special ability in this line of work.

Should the Association so desire, I will be glad to submit a detailed report of progress and plans for printing in the Association Journal.

I have two recommendations upon which I should like the action of the Association.

The first is that the Association should appropriate \$150 for the expenses of the Joint Committee. All this money is economically expended for the most necessary purposes. Contributions range from \$150 to \$300 from the different organizations concerned, and there are various individual contributions also. Last year I secured \$100 from friends in the Association and this would be possible again although it is neither right nor desirable. If the Association is interested in the work and maintains a sub-committee, it ought to contribute as an organization.

The second recommendation is that we should express our opinion on a proposition to drop the final "i" from such names as "Dillenii" and "Fabii." These names are the genitive forms, respectively, of "Dilleniuss" and "Fabius;" and according to every rule of nomenclature should end in two "i's." In the case of the genitive form of "Brutus," we should, of course, have but a single "i." Some of the correspondents of the Joint Committee who are either not versed in the rules of the subject or who are not properly interested in them wish to drop the final "i" from the botanical name simply as a matter of convenience. While we should not seriously

Presented at Second General Session, A. P. H. A., Chicago meeting, 1918. The item of expense was referred to the Council, and the second resolution to the Committee on Resolutions and afterward favorably reported and approved. (See minutes of Final General Session.)

oppose juggling with common names, in the interest of practicality, we feel that the botanical names should be respected. We therefore submit the following resolution and trust that you will adopt it.

WHEREAS, Botanical names are essentially foreign in origin and form, and should be dealt with in accordance with the rules of the language to which they pertain; therefore it is

Resolved, That in the opinion of the American Pharmaceutical Association, the Joint Committee on Nomenclature should not drop the final "i" of specific botanical names which retain them in accordance with such rules.

Respectfully submitted,

H. H. RUSBY, *Chairman*.

REPORT OF THE COMMITTEE ON THE NATIONAL FORMULARY.*

Your Committee on National Formulary has been occupied during the past year with a consideration of plans for the next revision of the National Formulary. During the last revision confusion and delay resulted at times because of misunderstandings regarding the plan of the work, and it became evident that an efficient plan at the start for the work of revision is an important factor in the obtaining of results. At the meeting of the Association at Atlantic City this Committee made the following recommendation, which was afterward adopted by the Council:

"We recommend that with the appointment of the (next) committee general principles be outlined for the guidance of the revision, and that thereafter the final decision on all questions pertaining to the revision be left to the Committee."

The plans which the present committee has considered pertain only to the method of distributing the work, and do not include general principles for the control of the revision. The system which we herewith propose is not intended to be mandatory, but only to give to our successors the benefit of our experience in the work of revision and to suggest means by which the work may be expedited. Future conditions will probably demand some changes in the details, and it is not intended to hamper in any degree the judgment or desires of the next committee by a closed method for the revision.

With this interpretation we recommend that the work of the next committee be based on the following plan:

Time.—That future revisions of the National Formulary should be made simultaneously with those of the United States Pharmacopœia.

Organization.—Future committees should consist of 15 members, to be appointed each ten years by the Council of the American Pharmaceutical Association. The officers of the committee should consist of a Chairman, Vice-Chairman and Secretary, to be elected by the committee.

Plan of Work.—The committee should apportion its work to the following sub-committees which shall report to the general committee:

1. On Admissions, Deletions and Nomenclature.
2. On Botany and Pharmacognosy.

(To have charge of the preparation and revision of text for vegetable drugs in Part II.)

3. On Chemistry and Assays.

(To prepare text or revise the text for chemicals in Part II, and to add or revise such assay processes as are needed throughout the book.)

4. On Doses.
5. On Elixirs.
6. On Syrups, Spirits and Wines.
7. On Fluidextracts.
8. On Fluidglycerates and Tinctures.
9. On Infusions, Liquors, Mixtures, and Emulsions.

* Read before Section of Practical Pharmacy and Dispensing and referred to the Council.

10. On Pills, Powders, Species, Effervescent Salts, Troches, Pastes, and Pencils.
11. On Glycerogelatins, Liniments, Lotions, Nebulae, Muls, Oleates and Ointments.
12. On Miscellaneous Preparations not included in the above.

The above division of work is more equable than may appear on first reading and it conforms to natural divisions. It may be modified in detail as conditions demand.

Considerable attention was paid to the question of increasing the number of members from 15 to 25, but after discussion it was decided to recommend the present number of members, as is required in the Association By-Laws. While an increased membership would lighten the demand for laboratory work on individual members, it prevents as many personal conferences as fifteen members may hold, and one day of conference of this kind can accomplish as much as many weeks of work by correspondence. A smaller committee also is more prompt in its work, is usually more harmonious, and saves much time in correspondence.

The question of alternate formulas, or the temporary dropping of formulas for preparations containing glycerin or sugar, as a war measure, has also received attention. This question was brought to us from several sources, and at first a considerable sentiment was displayed toward extreme conservation of glycerin and sugar. But the necessity for such measures has not yet appeared sufficiently urgent for action, and the matter is held in abeyance.

When it is considered that the total amount of sugar used in pharmaceutical preparations of all kinds is less than half as much as is used in tobacco, less than is used in chewing-gum and less than a tenth of that used in soft drinks, it does not seem needful that the sick should be the first to be deprived of their share of pleasure.

No figures are yet available for glycerin, but we can depend upon an imperative demand being made by the War Department if stringent conservation of glycerin should become necessary. So at present the committee is following the policy of watchful waiting on these questions.

The question of issuing a supplement in 1919 has also received attention. At present there appears no marked demand for such, and official changes in formulas or additional official formulas within the ten-year periods are troublesome to pharmacists and unless really necessary are inadvisable. Under present conditions official changes are especially unwelcome and thus far criticisms of the National Formulary IV do not indicate a need of immediate revision. Therefore, unless war conditions should develop some situation which calls for immediate action within the next year, this present committee may consider its work as finished.

Respectfully,

WILBUR L. SCOVILLE, *Vice Chairman.*

REPORT OF COMMITTEE ON PHYSIOLOGICAL TESTING.*

Although concerted experiments by the Committee are lacking, largely for the reason stated by its Chairman, there has been considerable work along the lines of Biological Standardization which seemed of sufficient importance to summarize.

The bibliography herewith submitted, with short abstracts of articles, may not be complete but includes all that came to the Chairman's attention. Several of these must be noted by title only, as neither the article nor an abstract could be found on short notice.

ABSTRACTS AND BIBLIOGRAPHY OF PHYSIOLOGICAL STANDARDIZATION, 1917-1918.

"*den Besten und de Lind von Syngaarden*, Physiological Standardization of Digitalis Preparations upon warm blooded animals," *Nederl. Tydschr. Geneesch.*, Amsterdam, 1917, 2, p. 479.

Colson, "Biological Standardization of the Heart Tonic Preparations," *JOURNAL A. PH. A.*, 1918, 7, 13.

Tests were carried out by the M. S. D. Frog Method and the Cat Method, slightly modified. He concludes that the former is subject to too many variables to make it practicable or

* Presented at second General Session, A. Ph. A., Chicago meeting, 1918. Chairman E. M. Houghton stated that owing to press of other work in connection with the manufacturing of supplies for the U. S. Government (U. S. Army Medical Service), the members of the Committee were unable to prepare a report, but present this in lieu of it to show the progress of the year in physiological testing.—EDITOR.

accurate and that the Cat Method has much to recommend it. He admits that the Cat Method belongs to the toxic type of assay but is convinced that the digitalis action is on the heart and not on the respiratory centers.

Colson and Engelhardt, "Is the Biological Standard of Squill and the Preparations thereof Correct?" *JOURNAL A. PH. A.*, 1917, 6, p. 950.

The authors submit data of tests of squill by three methods, the M. L. D., M. S. D., and Cat Methods, and claim that the U. S. P. standards for squill are incorrect, the toxicity by the Cat Method being only one-half that of digitalis.

Eckler, "On the Deterioration of Crude Indian Cannabis," *JOURNAL A. PH. A.*, 1917, 6, p. 872.

The author shows by tests that the attic-stored crude drug loses its activity entirely in 5 years, while in a cool basement the average yearly loss is only one-half as great.

Eckler, "Apparatus for Studying the Effect of Drugs on the Isolated Guinea Pig Uterus," *Journ. of Lab. and Clin. Med.*, 1917, 2, p. 819.

This is a detailed description with cuts showing an apparatus designed to control the various factors concerned in the assay of pituitary extracts on the isolated guinea pig uterus.

Focke, "Ueber die physiologische Wertmessung des Digitalysate," *Zeitschr. f. Exp. Path. & Therapie*, 1916, 18, p. 382.

Hamilton, "Biological Standardization," *Amer. Journ. of Pharm.*, 1917, 89, p. 61.

The author criticizes the methods or the technic adopted by the U. S. P. Revision Committee for the biological assay of cannabis, adrenalin and pituitary products and the digitalis series of heart tonics, pointing out errors and suggesting improvements.

Hamilton, "The Stability of Cannabis and Its Extracts," *JOURNAL A. PH. A.*, 1918, 7, p. 333.

The author takes issue with Eckler as to the rate of deterioration of cannabis, showing results of the drug 15 and 21 years old as being still 75 and 30 percent of standard. The drug was kept in bottles on the laboratory shelves.

Hamilton, "The Deterioration of Digitalis Extracts," *JOURNAL A. PH. A.*, 1918, 7, p. 433.

The author points out that while some samples of digitalis tincture have deteriorated greatly in a short time the average deterioration is far below that observed by Pittenger and Mulford, Jr.

Hall and Hamilton, "Investigation on the Composition of Oil of Chenopodium and the Anthelmintic Value of Some of Its Components," *Journ. of Pharm. and Exper. Therap.*, 1918, 61, p. 231.

The authors show by tests of oil of chenopodium and of various fractions of the oil that while the activity is not improved, the objectionable features are largely eliminated by selecting a fraction—about 70 percent—rather than using the whole oil as an anthelmintic.

Krogh, "The Physiological Standardization of Digitalis," *Ugeskr. f. Laeger*, 1917, 79, p. 475.

This author assayed digitalis preparations by use of the isolated frog's heart, selecting as the endpoint the amount of drug, applied by perfusion, necessary to arrest spontaneous contraction. He considers the method accurate within 10 percent.

Morris, "Standardization of Digitalis and Potency of the Minnesota Leaf," *Journal Lancet*, 1917, p. 176.

Pittenger, "Biological Assay Methods of U. S. P. IX," *JOURNAL A. PH. A.*, 1917, 6, p. 865.

This is a critical review of the biologic assay methods of the U. S. P., with suggestions for improving the technic and as to the standards employed.

Pittenger, "An Improved Apparatus for Testing the Activity of Drugs on the Isolated Uterus," *JOURNAL A. PH. A.*, 1918, 7, p. 512.

This is a detailed description of a complicated apparatus for testing drugs which are standardized by their action on the isolated uterus muscle such as ergot and pituitary extracts.

Pittenger and Mulford, Jr., "The Deterioration of U. S. P. and Fat-Free Tinctures of Digitalis," *JOURNAL A. PH. A.*, 1918, 7, p. 236.

The authors give details of results obtained from testing samples of digitalis tinctures prepared by different menstrua and aged for about 7 months. These show a remarkably high

rate of deterioration, in one case a loss in 7 months of about 70 percent. Their results seem to show that a fat free tincture prepared with 50 percent alcohol deteriorates the least.

Pilcher, "The Bio-Assay of Veratrum Viride," *Amer. Journ. of Physicians*, 1917, 44, p. 1.

The author proposes the use of frogs for assaying veratrum preparations.

Robinson and Wilson, "A Quantitative Study of the Effect of Digitalis on the Heart of the Cat," *Journ. of Exp. Pharm. and Phys.*, 1918, 10, p. 491.

The authors used the Cat Method of Assay and studied the action of digitalis on the heart. Among other facts developed is this—that the M. L. D. varied 100 percent, which coincides with results by some other authors.

Rogoff, "A Method for the Standardization of Thyroid Preparations," *Journ. of Pharm. and Exp. Therap.*, 1917, 10, 199.

The author suggests the action of thyroid material as a means of standardization. The effect is on the differentiation and growth, the more active the product the slower is growth and development.

Redonnet, "The So-called Titration of the Digitalis Preparations on Frogs," *Cor.-Bl. of Schweiz. Aertze*, 1917, 47, p. 974.

Roth, "The Activity of Wild American Digitalis," *Pub. Health Reports*, 1917, 32, p. 377.

Examination of digitalis from Oregon showed a high degree of toxicity compared with that commonly found on the market.

Salant, "The Pharmacology of the Oil of Chenopodium with Suggestions for the Prevention and Treatment of Poisoning," *Journ. Amer. Med. Ass'n*, 1917, 69, p. 2016.

The author determined the M. L. D. for a number of animals, showing by some experiments the action on circulation and respiration as well as on the digestive organs and the kidneys. He also demonstrated the value of a fatty oil such as olive, cocoanut or castor to minimize these effects.

Sellards and McIver, "The Treatment of Amebic Dysentery with Chaparro Amargosa," *Journ. of Pharm. and Exp. Therap.*, 1918, 11, p. 331.

These authors found an active constituent in Chaparro Amargosa, testing it not only for chemical and toxic properties but also for its action on the parasite of amebic dysentery.

Sollmann, "The Comparative Activity of Local Anesthetics," *Journ. of Pharm. and Exp. Therap.*, 1917, Nov.; 1918, Feb.

Five series of tests were carried out in comparing the action with other local anesthetics. By different methods, different ratios were obtained, showing that their action is not identical and that no one method will show the efficiency of an anesthetic. The tests were carried out on the motor and sensory nerves (isolated) of frogs, on frog's skin on the corner and intracutaneously on human subjects.

Spaeth and Barbour, "The Action of Epinephrin and Ergotoxin upon Single Physiologically Isolated Cells," *Journ. Pharm. and Exp. Therap.*, 1917, 9, p. 431.

Using the melanophores of *Fundulus heteroclitis*, this author demonstrated its value in standardizing adrenalin (epinephrin), the pigment cells contracting with a dilution of 1:50,000,000. Ergotoxin expands the pigment cells and thus demonstrates the equivalence between these and other smooth muscle cells.

Spaeth, "A New Method for the Standardization of Pituitary Extract," *Journ. Pharm. and Exp. Therap.*, 1918, 11, p. 209.

The method just described was applied to the standardization of pituitrin solutions. The action is a contraction apparently identical with that observed with dilutions of adrenalin. The test is proposed as a method for quantitative assay of pituitary extracts. No results are appended.

REPORT OF THE DELEGATES OF THE A. PH. A. TO THE NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION *

As one of your delegates to the Annual Meeting of the National Wholesale Druggists' Association in Chicago last fall, I am pleased to report a cordial reception and disposition to co-operate in legislative matters. Mr. George W. Lattimer, of Columbus, Ohio, before reading his

* Presented at the Chicago meeting, A. Ph. A.

creditable and very valuable report of their Legislative Committee, expressed his joy in the selection of men to represent them in Washington who could be depended upon for correct information before Bureaus or Committees of Congress, backed by letters from members of their Committee resident at the principal State capitols.

This report will be of great interest to the legislative committees of this and other druggist associations, as it gives intelligent consideration to War Revenue Legislation, Bone-Dry Legislation, Harrison Narcotic Law, Testing of Imported Drugs, Drug Patents, Mailability of Poisons, Federal Child Labor Law, recently held as unconstitutional, Honest Paint Legislation, as indicated by bill introduced by Senator Kenyon of Iowa, Price Maintenance and the Stephens Bill, and other honest merchandising measures and statistics relating to the drug business in the various States.

Upon the conclusion of this report President Morrison recognized Mr. W. L. Crounse, their legislative correspondent, who had just arrived from Washington, in reference to the War Revenue Law to go into effect on that day (Oct. 3, 1917). Following his general remarks, we quote from page 399 of the printed Proceedings:

"President Morrison: The report of the Committee on Legislation is now open for general discussion.

"George H. Schafer: Mr. President and Gentlemen: I was one of the pioneer members of the Western Wholesale Druggists' Association; was on the Committee on Legislation when Mr. McKinley was chairman of the Ways and Means Committee.

"I today arise as a delegate of the American Pharmaceutical Association to commend the report just read and to briefly refer to our meeting at Louisville in 1874 (Proceedings, pages 545-550), when I proposed resolutions to petition Congress to remove the Liquor Dealers' License libel and other legislative evils that were hampering our profession and with increased membership ask Congress to abate such evils by pharmacists' license regulations to make a distinction between alcohol as sold by liquor dealers and alcohol used by the pharmacist. The idea was to make title distinction fundamental to tax exemption of alcohol for all legitimate uses of the licensed pharmacist and have the tax apply only to distilled spirits used for beverage purposes.

"In 1874 the Association felt they were not prepared to ask Congress for a differentiation as between the liquor dealer and the druggist, but such legislation is progressing, and through the instrumentality of the State pharmacy laws we are advancing to where this Association, the most influential of all, followed by the American Pharmaceutical Association, the National Association of Retail Druggists, and others, should endeavor to make a concerted effort to have these fundamentals adjusted and have a differentiation made between retail liquor dealers and registered pharmacists in the use of alcohol, especially so, when the Internal Revenue Law, just enacted, makes a partial but positive distinction as to distilled spirits not intended for beverage purposes.

"I will be glad to assist your Board of Control to perfect plans for the federation of all drug fraternities to unitedly petition Congress to now perfect such legislation as will exempt the Registered Pharmacist who complies with proper regulations from hanging up a liquor dealers' license or paying exorbitant taxes that should apply only to sales as a beverage."

Thereupon general discussion took place and many questions propounded, to which Mr. Crounse gave ready response and Secretary Holliday, preceding a suspension of this discussion, said:

"This information is very valuable, but there are many points which cannot be covered in a discussion of this character, and I want to say that just as soon as I return home from this convention I will go to Washington and Mr. Crounse and myself will work out all of these details to the best of our ability and secure all the information we can from the Internal Revenue Bureau, and we will then send out a bulletin covering every item, and do it as soon as possible."

It pays to have known personal representatives at seats of government to issue bulletins or reply to important correspondence relating to the drug trade, and all druggists' associations should make coöperative arrangements to support same.

Respectfully submitted,

GEO. H. SCHAFER,

Attested by C. P. VAN SCHAAK

H. M. WHELPLEY.

COUNCIL BUSINESS

COUNCIL MEETINGS.

SIXTH SESSION OF THE COUNCIL, 1917-1918.

(Concluded from p. 912, October issue.)

The following communication from the Section on Education and Legislation was presented:

"The Section on Education and Legislation recommends to the Council that a committee be appointed to study the question of the separation of drug stores into two classes—drug stores and prescription pharmacies and present to us at our next annual meeting a plan of separation that will cause the least amount of harm and the greatest amount of good to both."

In this connection, the following statement was appended by Chairman F. H. Freericks of the Section:

"I firmly believe that this separation is the only satisfactory solution to the problem and that the time is ripe for both parties to take the case to court and sue for divorce. No organization is better fitted to judge the case than the American Pharmaceutical Association; therefore, in conclusion, I would suggest that this Section recommend to the Council that a committee be appointed to study this question for a year and present to us at our next annual meeting a plan of separation that will cause the least amount of harm and the greatest amount of good to both members of the unhappy union."

On motion of Dr. F. E. Stewart, seconded by E. G. Eberle, the recommendation was adopted and the committee directed to be appointed by the Chairman of the Council.

Several matters referred by the Association to the Council were considered as follows:

(1) Appropriation of \$25 to Committee on Syllabus.

On motion of Jacob Diner, seconded by H. V. Arny, the appropriation was granted.

(2) Appropriation of \$10 for dues in American Metric Association.

On motion of H. V. Arny, seconded by W. B. Day, the appropriation was granted.

(3) Appropriation of \$150 for Joint Committee on Revised Nomenclature of Cultivated Plants.

On motion of H. V. Arny, seconded by Jacob Diner, the appropriation was referred to the Committee on Finance to report on later to the Council.

The question of cost of reprints of the Report of the Committee on Military Status of Pharmacists in the Government Service, ordered to be published by the second general session of the Association, was considered, and on motion of J. A. Koch, seconded by H. V. Arny, it was directed to be charged against the Miscellaneous Items of the Budget of Appropriations.

Treasurer Whippley discussed at length the desirability of converting certain funds of the Association into registered bonds of the Third Liberty Loan.

On motion of S. L. Hilton, seconded by Jacob Diner, the Treasurer was authorized to invest all or a part of the funds of the Life Membership Fund, the Centennial Fund and the Endowment Fund, amounting to \$16,000 (now deposited in the Boston Penny Savings Bank) into registered bonds of the Third Liberty Loan.

On motion of J. A. Koch, seconded by H. V. Arny, it was decided to invest the funds of the William Procter, Jr., Memorial Fund in the same manner. The fund amounts to over \$8,000.

Chairman Hopp announced the appointment of the Committee on Nominations for Committees of the Council to report at the first session of the Council for 1918-19 to be held on Saturday, August 17, 1918. The committee named was W. B. Day and J. W. England.

The recommendations of the address of Chairman F. H. Freericks, to the Section on Education and Legislation, and referred for action to the Council, were considered. These were as follows:

"What can American Pharmacy do to secure the future of the young pharmacist now in the Army and Navy? Let us be mindful of the fact that while most of them will return strong in body and mind, there will be some unfortunately crippled

and more or less disabled for life. We must have a place not only for every one that returns sound in body, but also for all who are more or less disabled. Fortunately, the trained pharmacist, though he be blind or without limb, can with proper help continue a useful man in pharmacy, to the end of his day. My subject might be elaborated upon in many different ways, and with much detail, but it occurs to me to be a needless loss of words, if I may have the privilege to submit a rough outline of what, in my judgment, should now be done by American Pharmacy and particularly by the American Pharmaceutical Association.

"1st. I would propose the appointment of an A. Ph. A. Advisory Committee for Soldier and Sailor Pharmacists.

"2nd. With the aid of Pharmaceutical Journals and business houses who come in touch with retail pharmacists, it should be the duty of such Committee to learn the name and address of every pharmacist now in the service.

"3rd. Through the same medium it should be the duty of such Committee to learn and card index every pharmacist who now reasonably anticipates that he will have a position open for a pharmacist returning from the War.

"4th. By the same means it should be the duty of said Committee to learn of all now conducting retail drug stores who anticipate that they will be ready to dispose of them to one of the returning pharmacists after the War, or who may have favorable partnership openings to offer at that time.

"5th. A complete directory should be secured of all pharmacists who believe that they will have some useful opening for those of the men who will return partly disabled.

"6th. The Committee should adopt proper means, in ample time, to inform every pharmacist serving in the Army and Navy of its work, and of readiness to be of service in their re-establishment.

"7th. Anticipating that the man now a registered pharmacist of California, may, on his return, find employment in New York, and that the man now a registered pharmacist in New York, may find employment in Illinois, it should be made possible under the direction of the National Association of Boards of Pharmacy, and where their authority does not reach, then by an amendment of the respective state laws, that every pharmacist returning from the service, registered in one state, desiring to locate within another, shall, within six months after honorable discharge, have the absolute right, on the strength of registration in his home state, to become registered in such other state.

"I most earnestly urge that the American Pharmaceutical Association can not and should not fail in this high duty. This brief outline of how the matter may be handled is, of course, only a suggestion, and doubtless the general outline can and will be greatly improved. Just another thought. A wonderful opportunity is presented to our colleges and schools of pharmacy. Among the thousands of young pharmacists there will be thousands who have had no college training, and who with a college training would add glory to American Pharmacy. These men as they return, without any definite vocational ties, will be situated as otherwise they never could be, to give at least a year of their time to college training. Doubtless they will need assistance in one form or another, but where there is a will this can be readily provided. Are our colleges and schools of pharmacy awake to the situation? Is it impossible to arrange a special course for these men and is it altogether out of the question to overlook the pre-requisites, if necessary, where the service has been of such special nature?

"American Pharmacy not only has a duty, but has an opportunity which it would be a pity to neglect."

The general principles of the above recommendations were approved and the details of carrying them into effect were, on motion, referred to a special committee to be appointed by the Chairman of the Council.

The communication from the Commercial Section, presented at the fifth session of the Council, on August 15, 1918, the consideration of which was deferred, was then taken up and discussed.

On motion of H. V. Army, seconded by Jacob Diner, the recommendations were approved and referred favorably to the National Drug Trade Conference for consideration and action.

Adjourned *sine die*.

J. W. ENGLAND, *Secretary*.

FIRST SESSION OF THE COUNCIL, 1918-1919.

The first session of the Council for 1918-19 was held at the Congress Hotel, Chicago, on Saturday, August 17, 1918, at 9:30 A.M., Chairman Hopp presiding.

Present: Messrs. H. V. Army, T. J. Bradley, Jacob Diner, Dr. A. R. L. Dohme, E. F. Kelly, J. W. England, J. G. Godding, S. L. Hilton, L. C. Hopp, Jeannot Hostmann, L. A. Seltzer, Dr. F. E. Stewart, F. J. Wulling, Charles E. Casjari, C. H. LaWall and E. G. Eberle.

The following application for membership was received and favorably acted upon:

No. 410. Albert Henry Perihard, Assistant Surgeon, U. S. Navy, Headquarters 6th Regiment, Great Lakes, Ill., rec. by H. M. Whelpley and W. F. Rudd.

The election of officers of the Council for 1918-19 was held, the following being elected

Chairman—Lewis C. Hopp.

Vice-Chairman—Samuel L. Hilton

Secretary—J. W. England.

The election of officers of the Association for 1918-19 was held, the following being elected

General Secretary—William B. Day.

Treasurer—Henry M. Whelpley.

Editor of the JOURNAL—Eugene G. Eberle.

Reporter on the Progress of Pharmacy—H. V. Army.

Local Secretary—Hugo H. Schaefer.

The report of the Committee on Nominations on Committees of Council for 1918-19 was presented, and on motion of Dr. A. R. L. Dohme, seconded by S. L. Hilton, was adopted. The committees of the Council are:

COMMITTEES OF THE COUNCIL.

Committee on Finance and Auditing Committee.

J. A. Koch, Chairman, Pittsburgh, Pa. Otto F. Claus, St. Louis, Mo.
G. M. Beringer, Camden, N. J.

Committee on Publication.

J. W. England, Chairman, Philadelphia, Pa. C. A. Mayo, New York, N. Y.
George M. Beringer, Camden, N. J. H. B. Mason, Detroit, Mich.
E. L. Newcomb, Minneapolis, Minn.

Ex-Officio Members—The Editor, Reporter on the Progress of Pharmacy, General Secretary and Treasurer.

Committee on Invested and Trust Funds.

Wm. B. Day, Chairman, Chicago, Ill. Frederick J. Wulling, Minneapolis, Minn.
E. G. Eberle, Philadelphia, Pa. H. M. Whelpley, ex-officio, St. Louis, Mo.

Committee on Centennial Fund.

A. R. L. Dohme, Chairman, Baltimore, Md. Wm. B. Day, Chicago, Ill.
J. A. Koch, Pittsburgh, Pa.

Committee on Transportation.

Caswell A. Mayo, Chairman, New York, N. Y. J. L. Lengfeld, San Francisco, Cal.
Wm. B. Day, Chicago, Ill. E. Floyd Allen, Minneapolis, Minn.
Lewis C. Hopp, Cleveland, Ohio. F. C. Godbold, New Orleans, La.
H. M. Whelpley, St. Louis, Mo. W. S. Elkins, Jr., Atlanta, Ga.
Charles G. Merrell, Cincinnati, O. C. Herbert Packard, Boston, Mass.
E. F. Kelly, Baltimore, Md. Chas. J. Clayton, Denver, Colo.

The General Secretary and Local Secretary, ex-officio members.

Committee on National Formulary.

| | |
|-----------------------------------------------|--------------------------------------|
| W. L. Seoville, Vice-Chairman, Detroit, Mich. | E. Fullerton Cook, Philadelphia, Pa. |
| Clyde M. Snow, Chicago, Ill. | H. A. L. Lunning, Baltimore, Md. |
| A. B. Stevens, Ann Arbor, Mich. | Samuel L. Hilton, Washington, D. C. |
| Otto Raubenheimer, Brooklyn, N. Y. | Charles H. LaWall, Philadelphia, Pa. |
| Leonard A. Seltzer, Detroit, Mich. | Geo. M. Feringer, Camden, N. J. |
| Harry V. Army, New York, N. Y. | Wm. A. Fall, Detroit, Mich. |

Adam Wirth, New Orleans, La.

Committee on Standards.

| | |
|------------------------------------------|-------------------|
| Elmer E. Wyckoff, Brooklyn, N. Y. | Term expires 1919 |
| J. A. Koch, Chairman, Pittsburgh, Pa. | Term expires 1919 |
| L. D. Havenhill, Lawrence, Kans. | Term expires 1919 |
| E. L. Newcomb, Minneapolis, Minn. | Term expires 1919 |
| Henry Kraemer, Ann Arbor, Mich. | Term expires 1920 |
| Eustace H. Gane, New York City. | Term expires 1920 |
| B. L. Murray, Rahway, N. J. | Term expires 1920 |
| W. A. Puckner, Chicago, Ill. | Term expires 1920 |
| John G. Roberts, Philadelphia, Pa. | Term expires 1921 |
| Otto Raubenheimer, Brooklyn, N. Y. | Term expires 1921 |
| George D. Rosengarten, Philadelphia, Pa. | Term expires 1921 |
| O. A. Farwell, Detroit, Mich. | Term expires 1921 |
| George M. Beringer, Camden, N. J. | Term expires 1922 |
| H. H. Rusby, Newark, N. J. | Term expires 1922 |
| F. R. Eldred, Indianapolis, Ind. | Term expires 1922 |
| John M. Francis, Detroit, Mich. | Term expires 1922 |

Committee on Recipe Book.

| | |
|----------------------------------------------|-------------------|
| Theo. D. Wetterstroem, Cincinnati, Ohio. | Term expires 1919 |
| P. Henry Utech, Meadville, Pa. | Term expires 1919 |
| Wm. L. Cliffe, Philadelphia, Pa. | Term expires 1919 |
| Otto Raubenheimer, Chairman, Brooklyn, N. Y. | Term expires 1920 |
| C. H. LaWall, Philadelphia, Pa. | Term expires 1920 |
| W. L. Seoville, Detroit, Mich. | Term expires 1921 |
| W. H. Glover, Lawrence, Mass. | Term expires 1921 |
| Curt P. Wimmer, New York, N. Y. | Term expires 1921 |
| John K. Thum, Philadelphia, Pa. | Term expires 1922 |
| I. A. Becker, Chicago, Ill. | Term expires 1922 |
| Clarissa M. Roehr, San Francisco, Cal. | Term expires 1922 |
| Clarence G. Spalding, New Haven, Conn. | Term expires 1923 |
| E. Fullerton Cook, Philadelphia, Pa. | Term expires 1923 |
| William Gray, Chicago, Ill. | Term expires 1923 |

Commission on Proprietary Medicine.

| | |
|------------------------------------|-------------------|
| S. C. Henry, Philadelphia, Pa. | Term expires 1919 |
| J. H. Beal, Chairman, Urbana, Ill. | Term expires 1920 |
| W. H. Cousins, Dallas, Tex. | Term expires 1921 |
| John C. Wallace, New Castle, Pa. | Term expires 1922 |
| Charles E. Caspari, St. Louis, Mo. | Term expires 1923 |

Treasurer Whelpley discussed the question of delinquency of dues by members, and on motion of W. B. Day, seconded by T. J. Bradley, the Treasurer was authorized to use his discretion in continuing the delinquents of 1918 as members, but in no case beyond the end of the present fiscal year.

Jeannot Hostmann stated that the House of Delegates had approved of the suggestion of "combination dues" for members of the A. Ph. A. and the State Pharmaceutical Associations, referred to it by the Council, and had instructed the delegates present from the State Associations to present the matter to the Associations for consideration at their next annual meeting.

Adjourned.

J. W. ENGLAND, *Secretary.*

A. PH. A. COUNCIL LETTER NO. 1.

PHILADELPHIA, September 4, 1918.

TO THE MEMBERS OF THE COUNCIL:

The following is a list of the members of the Council for 1918-1919:

MEMBERS OF THE COUNCIL 1918-19.

Army, H. V., 115 W. 68th Street, New York, N. Y.
 Beal, James H., 801 W. Nevada Street, Urbana, Ill.
 Beringer, George M., 5th and Federal Streets, Camden, N. J.
 Bradley, Theo. J., Mass. College of Pharmacy, Boston, Mass.
 Caspari, Charles E., 2108 Locust Street, St. Louis, Mo.
 Cook, E. Fullerton, 145 North 10th Street, Philadelphia, Pa.
 Day, Wm. B., 701 South Wood Street, Chicago, Ill.
 Dohme, Alfred R. L., Pratt and Howard Streets, Baltimore, Md.
 Dye, Clair A., Ohio State Univ., Columbus, Ohio.
 Eberle, Eugene G., 253 Bourse Building, Philadelphia, Pa.
 Eldred, Frank R., 3325 Kenwood Avenue, Indianapolis, Ind.
 England, Joseph W., 415 N. 33rd Street, Philadelphia, Pa.
 Fennel, C. T. P., 614 W. Court Street, Cincinnati, Ohio.
 Fuller, Oliver F., 540 W. Randolph Street, Chicago, Ill.
 Fuller, H. C., 19th and B Streets, N. W., Washington, D. C.
 Gathercoal, E. N., 701 South Wood Street, Chicago, Ill.
 Godding, John G., 278 Dartmouth Street, Boston, Mass.
 Hemm, Francis, 2108 Locust Street, St. Louis, Mo.
 Hensel, Samuel T., 351 Mercantile Building, Denver, Colo.
 Hilton, Samuel L., 1033 22nd Street, N. W., Washington, D. C.
 Hopp, Lewis C., 1104 Euclid Avenue, Cleveland, Ohio.
 Hostmann, Jeannot, 115 W. 68th Street, New York, N. Y.
 Kantrowitz, Hugo, 600 W. 178th Street, New York, N. Y.
 Kelly, E. F., Lombard and Green Streets, Baltimore, Md.
 Koch, J. A., Bluff and Pride Streets, Pittsburgh, Pa.
 LaPierre, E. H., 80 River Street, Cambridge, Mass.
 LaWall, C. H., 39 South 10th Street, Philadelphia, Pa.
 Mason, Harry B., P. O. Box 484, Detroit, Mich.
 Mayo, Caswell A., 66 West Broadway, New York, N. Y.
 Nitardy, F. W., 66 Orange Street, Brooklyn, N. Y.
 Rochr, Clarissa M., University Hospital, San Francisco, Cal.
 Schaefer, Hngo H., 115 West 68th Street, New York, N. Y.
 Seltzer, L. A., 32 Adams Street, W., Detroit, Mich.
 Snow, Clyde M., 701 South Wood Street, Chicago, Ill.
 Stewart, Francis E., 11 W. Phil-Elena Street, Philadelphia, Pa.
 Terry, R. W., Groveport, Ohio.
 Whelpley, Henry M., 2342 Albion Place, St. Louis, Mo.
 White, William R., 314 Hancock Street, Nashville, Tenn.
 Wilkerson, J. A., 4th and Washington Streets, St. Louis, Mo.
 Wulling, F. J., University of Minnesota, Minneapolis, Minn.
 Rudd, Wortley F., 1716 Grove Avenue, Richmond, Va.
 Total number, 41.

The Committees of the Council elected for 1918-1919 are printed under **First Session of the Council for 1918-1919** on pp. 1006 and 1007 of this issue.

J. W. ENGLAND, *Secretary*.

A. PH. A. COUNCIL LETTER NO. 2.

PHILADELPHIA, PA., September 23, 1918.

TO THE MEMBERS OF THE COUNCIL:

The following communication has been received:

"TO THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

GENTLEMEN:

"At the Chicago meeting the Council referred to the Committee on Finance the question of increasing the salaries of the officers of the Association on account of the rising cost of clerical and other work.

"The Committee has very carefully considered the present income and fixed charges of the association and arrived at the conclusion that it would be extremely unwise to increase these fixed charges at the present time. In view, however, of the urgency of the request of the Treasurer for aid at the present time to meet the increased cost of operation of his office, the Committee feels that some action for the relief of the Treasurer should be taken and recommends that an emergency appropriation of two hundred and fifty dollars (\$250.00) be made to meet the increased clerical expenses of the Treasurer's office during the year commencing August 15, 1918.

"The Committee desires it to be clearly understood that this is not an increase of salary, but only an appropriation made to enable the Treasurer to meet the increased cost of clerical aid in his work caused by the war conditions.

"With respect to the recommendation of the Committee on Publication that the salary of the Editor be increased two hundred and fifty dollars (\$250.00) per annum, the Committee recommends that this be granted because of the increased cost of living and the fact that the position is one requiring all of the time of the incumbent.

Respectfully submitted,

J. A. KOCH, *Chairman,*

GEORGE M. BERINGER,

OTTO F. CLAUS.

Committee on Finance."

What is the wish of the Council?

General Secretary Day offers the following resolutions. They have been suggested by Dr. C. C. Pierce, Assistant Surgeon General, Division of Venereal Diseases, Bureau of Public Health Service.

"WHEREAS, It is a matter of medical record that venereal diseases are the greatest single cause of disability in the Army; and

"WHEREAS, It has been demonstrated that the great majority of such diseases are brought into the Army from civilian life, having been contracted before enlistment; and

"WHEREAS, It has been demonstrated that one of the greatest contributing factors to the continued existence and spread of venereal infection among the civilian population is attempted self-treatment by individuals without proper medical diagnosis and direction.

"Therefore be it resolved, That the Council of the American Pharmaceutical Association, appreciating the seriousness of venereal diseases among the armed forces of the United States, and desirous of doing everything in its power to assist the Government in the war emergency, pledges the best efforts of the organization in cooperating with the program of the United States Public Health Service to reduce the venereal disease scourge.

"And be it further resolved, That this Association recommends to the retail druggists of the United States that they discourage attempted self-treatment by refusing to sell to infected people who are carriers of venereal disease, patent proprietary remedies compounded for such self-treatment, and by directing such carriers to competent physicians, venereal clinics or boards of health for scientific care, so as to hasten their cure and reduce the danger of infection to civilians and to soldiers and sailors of the United States."

(To be concluded in December issue.)

EDITORIAL NOTES

Editor: H. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman*; G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio*.

Editorial Office: 253 Bourse Building, Philadelphia, Pa.

SERUMS AND VACCINES IN INFLUENZA

In an editorial of the *Journal* (A. M. A., November 2, 1918), it is stated that up to the present time there is no specific means for the cure of influenza, and no specific vaccine or vaccines for its prevention.

TOXICITY OF CERTAIN ORGANIC ARSENIC COMPOUNDS AND TOXICITY OF EMETINE HYDROCHLORIDE.

Bulletin No. 113 of the Hygienic Laboratory, U. S. Public Health Service, reports on experimental investigations of the toxicity of certain organic arsenic compounds by George B. Roth, and on the toxicity of emetine hydrochloride, with special reference to the comparative toxicity of various market preparations by Gleason C. Lake.

The first part of the first report deals with Salvarsan made in America and the second with Neosalvarsan and Nediarsenol and covers four pages.

The general conclusions of the reporter are:

1. That no marked variation in toxicity was found in either German or American salvarsan, as shown by intravenous administration to rabbits and rats.

2. Individual variation in susceptibility to salvarsan is quite marked in both rabbits and rats.

3. The toxicity for rabbits and rats closely parallels the arsenic content of the salvarsan preparations examined.

4. Neosalvarsan preparations were found to be less toxic for rabbits and rats than the salvarsan preparations examined.

The author states that the work reported is to be followed by a more detailed examination of a larger number of samples and a consideration of some of the questions developed are now being made subjects of experimental study.

Gleason C. Lake acknowledges indebtedness to Dr. Carl Voeltlin, of the Hygienic Laboratory for many valuable suggestions and criticisms.

The results indicate a widely variable individual susceptibility with the same preparation of emetine hydrochloride in rabbits, white rats and white mice. The author states that Rowntree and Levy's work shows that the same holds true in cats and dogs, and concludes that the range of susceptibility to emetine poisoning varies in man, and perhaps more so, in so far as it has to do with cases of amoebic dysentery, where there is always present a pathological condition, varying in intensity.

ACUTE POISONING FROM 5 GRAINS OF ASPIRIN.

Dr. Edmund P. Shelby, New York City Hospital, reports on a case of poisoning from the administration of five grains of aspirin. The subject was a strong, vigorous woman. The toxic effects followed in less than an hour after taking the medicine and persisted for several hours. The report states that unusual susceptibility to the action of salicylates has often been noted, but no case is recalled wherein so small a dose produced such marked symptoms.

INDIANA STATE MEDICAL JOURNAL COMMENTS ON THE EDMONDS BILL.

While the editorial of the October issue *Indiana State Medical Journal* indorses the Edmonds Bill, a fear is expressed that, unless proper provisions are made, "unscrupulous manufacturers will foist their wares upon the Army." Also the following lines occur in the editorial: "It is nothing short of a disgrace to note that at the present time a few worthless proprietaries, through the influence of mercenary manufacturers' have been accepted and included as part of the medical supplies of the Army."

The latter can only indicate that the medical men of the Army have permitted these preparations to be included, and the first quotation shows where the trouble is, namely, lack of confidence in the sincerity of pharmacists. It is the old story. Pharmacists and physicians should know each other better and work to-

gether for the uplift of pharmacy, for the benefit of mankind. Carping criticism and lack of confidence will never do it.

The Edmonds Bill provides for pharmacists, as such; the fact that drug stores handle "patient medicines" has nothing whatever to do with them. Though they be pharmacists they are also men.

REQUIREMENTS FOR S. A. T. C. LOWERED

Requirements for entrance into the Student Army Training Corps at U. of P. have been reduced by an order of the War Department issued through the Committee of Education and Special Training. Inductions under previous orders were limited to men who presented sufficient college entrance credits and who applied for admittance before October 30.

Now all men desiring to attend any of the student army training colleges may do so, regardless of the fact that they have not quite enough preparatory work to meet the college entrance requirements, providing they have had vocational, military or business experience which in the estimation of the commanding officials will qualify them as officer material.

PHARMACISTS COMMENDED FOR GAL- LANT CONDUCT IN BATTLE.

Secretary Daniels, of the Navy, has commended seven pharmacists and two hospital apprentices now on service with the Sixth Regiment of Marines, A. E. F., for gallant conduct under fire in battle. Those cited are:

Oscar S. Goodwin, North Carolina; Percy V. Templeton, Georgia; Emmett Clive Smith, Georgia; Edmund P. Groh, Iowa; Leveque L. Whalen, Washington; Ursher Lee Fifer, Virginia; Horatio D. Gates, North Dakota; John Humphrey Marks, Oklahoma; Clyde A. Kindle, California; Bernard W. Herrmann, Jr., Ohio.

THE NEED OF PUBLICITY FOR PHARMACY.

British Pharmacists are planning a general campaign of education to inform the Government departments and the public generally, relative to pharmacy. In an article on the subject in the *Chemist and Druggist* ancient the propaganda use is made of a quotation from an address by an ex-President of the A. Ph. A., Dr. Oscar Oldberg, in 1911, when he said:

"I venture to call upon all pharmacists present to begin here and now a vigorous campaign to compel full recognition of the

great service rendered to mankind by the pharmacist. The public is ignorant of the fact that the pharmacist is the sole agent to whom must be entrusted the enforcement of so much of the public health laws as relates to the drugs used in the practice of medicine. Let us try to remove that ignorance. It is our right and duty to demand respect for the service rendered by our craft."

We have just as much need of this kind of publicity for pharmacy as they have in Great Britain. There unwarranted charges of profiteering have been made, which will be answered. Here we frequently have aspersions cast upon pharmacy and pharmacists that should be refuted. The public has not the proper conception of pharmacy nor is a very great interest displayed for it; if it had been otherwise, a pharmaceutical corps would have been part of the Medical Department of the Army before now. A good Republican once said, "I have watched —— and I have never discovered him in any wrongdoing, and he is a Democrat!" There are medical men so possessed of self-righteousness that they think none of their profession can do wrong, and every pharmacist is to be distrusted. Let us get closer; we should know each other, we have the same interests and purposes in common. Surely the liberal-minded men know that pharmacists are sincere in their desire for betterment, and they also know that disinterestedness is not universal among medical men. It is an easy matter to "break down"—we prefer to "build up" and not only for the good of professions but for humanity.

Let the propaganda by local, State and National associations proceed with a purpose of education, to tell the truth, and impress the value of pharmacy. In each locality the work will be somewhat differently outlined, but the purpose should be to advance the drug business and the cause of pharmacy. The address of Chairman J. C. Peacock of the Section on Practical Pharmacy and Dispensing, A. Ph. A., is worthy of careful study.

THE CHINESE OPIUM SCANDAL.

The opium trade is one of the causes of the split between North and South China.

Production and importation of opium were forbidden in 1911, and the law came into full operation on April 1, 1917, when the opium syndicate found it had 1,576 chests of opium on hand. President Feng Kuo-Chang con-

tracted to buy this opium for the Chinese Government, which was to pay 8,200 taels per chest, but the syndicate was to get only 5,700 taels. The difference was to go into the pockets of the President of China and his associates.

It now appears that the Peking government afterwards made a new deal with the opium syndicate and resold the opium on hand to another syndicate in which some prominent Japanese have an interest. The old opium syndicate got about \$10,000,000 for its stock of opium, and the President and members of the Peking government took as their share about \$3,000,000 and a loan of \$5,000,000 from the Japanese financiers.—From an editorial in *N. Y. Commercial*.

WAR PROFITS.

In a recent discussion on War Profits, Chas. J. Lynn, President of the American Drug Manufacturers' Association, furnished much food for thought when he said:

"War profits in my opinion are those which are the direct result of the war, such as those made by manufacturers who furnish directly or indirectly material of whatever kind used in the prosecution of the war, and only that portion of the profit made on such material is war profit. In the case of the average mercantile house, they will not know what their actual profits have been during the period of the war until after the war is over and they have passed through a readjustment period and are able to strike an average, and in my opinion the average thus found will in many cases be less than the normal average for the pre-war period.

"Many concerns have shown a considerable increase in profits as expressed in dollars and cents, due to increased business resulting from the general prosperity of the country without, however, having increased their normal percentage of profit even a small fraction. Other concerns not supplying materials for use in the prosecution of the war may thus far have shown an abnormal profit both in dollars and cents as well as in percentage due to the very large and rapid increase in the value of merchandise on hand. But this profit must later in practically every case be offset by the very large and rapid decline in stock values the moment peace is declared.

"I think that in determining just what is a war profit these conditions should be taken into consideration."

PAPER CONSERVATION.

November 11 to 16 was named as Paper Economy Display Week, and the Paper Economy Section of the War Industries Board asked that every retail merchant use a window display setting forth the necessity for paper economy and bringing to the attention of the public that all merchants are directed to discontinue the wrapping of package merchandise. This is a matter in which every druggist should be interested, from an economic standpoint. The Paper Economy Section suggested window displays during this week, and they are prepared to suggest slogans and other material which will help in the preparation of window cards. The Section is also desirous of securing photographs of good displays.

We heartily endorse every movement for economy in every possible direction. Unfortunately, however, there are many who disregard the necessity of economizing and all too frequently we see much waste of the very things that the conscientious citizen economizes in, thus, for example, it has been under advisement to construct a papier mache track for an international six-day bicycle race in New York. In this construction 48,000 square feet of material would be required. This is only one instance in which there is disregard of conservation. There is also much printed matter that consumes a great deal of paper and has really little general value. A movement is on foot to standardize the size of catalogues. This is a splendid move and will undoubtedly not only conserve paper but also make the filing of the catalogues more convenient. This proposition is discussed in the Proceedings of the Catalogue Conference held in Chicago May 22. The Proceedings are published by Poole Brothers, Chicago, from whom a copy of the report may be had.

ELIMINATE RETURNS OF MERCHANDISE.

The following request has been made by the War Industries Board:

"The Conservation Division of the War Industries Board has issued a special appeal to retailers, wholesalers and manufacturers in every industry and trade to coöperate with each other for the elimination of all unjustifiable returns of merchandise. This request is not intended to interfere with the return of merchandise when there has been an error on the part of the seller as to price, style, or quality, misinterpretation of order, unauthorized

substitution, or when merchandise is inferior or not up to sample. When goods are delivered as bought, however, they should not be returned to the seller. If merchandise is to be returned because of substitution or error of any kind, notice should be given by the purchaser within ten days after the receipt of the goods that return is intended.

"Ample time should, of course, be allowed for explanation or proffered adjustment. Salesmen should make definite sales only. In their

travels, furthermore, they can be of particular assistance by enlisting the coöperation of their customers for careful selection and purchase of merchandise so that returns will be unnecessary. Whole-hearted compliance with this request in the spirit of husbanding our resources and eliminating waste of transportation, materials and labor will be a substantial contribution by the merchants and manufacturers of the country to our general welfare and the success of the war program."

OBITUARY.

FREDERICK E. NIECE.

Frederick E. Niece, Superintendent of the Claremont Laboratories, New York City, died October 26 at his home in Queens Village, Long Island. Mr. Niece contracted influenza while experimenting to obtain a preventative serum for this disease. He was also preparing a lecture on the subject, to be delivered at the Cooper Union some time during this month. Mr. Niece was 43 years old, a native of Scranton, Pa., and held degrees from Cooper Union and the Brooklyn College of Pharmacy. He was a frequent contributor to various Sections of the American Pharmaceutical Association. He joined the American Pharmaceutical Association in 1903.

THOMAS LATHAM.

Thomas Latham, a prominent pharmacist of New York City, died September 24. Mr. Latham had been in poor health for several years, on which account he sold his drug store at Third Ave. and Seventy-fifth Street some time ago. Mr. Latham had established this store about thirty years ago, and previous to that time had been connected with Eimer and Amend. Mr. Latham was active in pharmaceutical organizations and was one of the founders of the Manhattan Association and also an officer. He was President during two years of the New York County Pharmaceutical Association, and an active member of the American Pharmaceutical Association, which he joined in 1900. The deceased is survived by a sister.

JESSE D. HODGES.

Jesse D. Hodges, of Little Rock, Arkansas, and President of the Arkansas Association of Pharmacists, died October 15, of influenza. Mr. Hodges joined the American Pharmaceutical Association in 1915.

GEORGE P. HEMM.

George P. Hemm, oldest son of Professor and Mrs. Francis Hemm, of St. Louis, died at his home in Hayes, Kansas, October 11. Dr. Hemm was a graduate of the St. Louis College of Pharmacy and of the St. Louis University Medical School.

ALBERT HENRY HEIDBREDER.

Albert Henry Heidbreder, of Quincy, Illinois, a graduate of the University of Illinois School of Pharmacy, Class of 1899, and a member of the firm of Heidbreder Bros. & Co., who operate several drug stores in Quincy, died at his home recently. He leaves a widow and a young son. He joined the American Pharmaceutical Association in 1905.

W. B. D.

CARL WILLIAM LUTZ.

Carl William Lutz, a prominent business man of Ottawa, Ill., died October 20, 1918, of pneumonia after a brief illness. Mr. Lutz was born in Ottawa June 10, 1887, and educated in the public school and high school of his native city. In 1910 he graduated from the University of Illinois School of Pharmacy, and after spending one year in drug stores in Chicago he entered upon his course in medicine at the College of Medicine of the University of Illinois, from which he was graduated in 1915. Though licensed to practice medicine, he was called to pharmacy again by the death of his father, C. J. Lutz, in July 1915, and since that date he successfully managed the drug store that he inherited from his father in Ottawa. In 1917 Mr. Lutz was appointed a member of the Board of Pharmacy examiners by Governor Lowden and served up to the time of his demise. In 1915 he married Miss I. M. Berg, of Chicago, to whom one child was born, Carl Frederick, now three

months old. Mr. Lutz joined the American Pharmaceutical Association in 1917 and was in attendance at the Chicago meeting. He

was very highly esteemed and was regarded as one of the successful business men of his community.
W. B. D.

SOCIETIES AND COLLEGES.

NATIONAL COMMITTEE ON THE PHARMACEUTICAL SYLLABUS.

BULLETIN XIX.

To the Members of the National Committee on the Pharmaceutical Syllabus:

I hand you herewith the financial statement of the Committee:

Receipts.

| | | |
|---------|------------------------------------------------------|----------------|
| 1917. | | |
| Oct. 4 | T. J. Bradley, retiring Treasurer..... | \$23 95 |
| Oct. 25 | American Pharmaceutical Association..... | 25 00 |
| Oct. 29 | American Conference of Pharmaceutical Faculties..... | 25 00 |
| Nov. 5 | National Assn Boards of Pharmacy..... | 25 00 |
| | Sale of 3 copies of the Syllabus..... | 3 85 |
| | | <hr/> \$102 80 |

Disbursements.

| | | |
|---------|--------------------------------------------|----------------|
| 1917. | | |
| Oct. 12 | Freight from Boston and cartage..... | \$ 2 80 |
| Oct. 12 | Typewriting for Bulletins XIII XIV-XV..... | 3 00 |
| Oct. 29 | Spatula Publishing Co., supplies..... | 12 75 |
| Nov. 2 | 100 3c. postage stamps..... | 3 00 |
| Dec. 7 | T. J. Bradley, miscellaneous expense..... | 9 00 |
| | | <hr/> \$30 55 |
| 1918. | | |
| Aug. 6 | Cash on hand..... | 72 25 |
| | | <hr/> \$102 80 |

There are now in the hands of the Secretary-Treasurer about one hundred and ten copies of the Syllabus.

Respectfully,

CLYDE M. SNOW,
Secretary-Treasurer.

Examined and found correct, August 14, 1918.

GEO. C. DIEKMAN,
Auditing Committee.

CHICAGO, ILL.,
Aug. 6, 1918.

BULLETIN XX

Minutes of the meeting of the Committee held at the Congress Hotel, Chicago, Illinois, August 14, 1918, Chairman T. J. Bradley presiding.

Present: Messrs. W. C. Anderson, T. J. Bradley, John Culley, G. C. Diekman, E. G. Eberle, W. G. Gregory, J. A. Koch, W. H. Rudder, H. H. Rusby, C. M. Snow.

The Chairman presented his report in which he discussed the following matters of interest to the Committee:

Revision of the introductory matter of the Syllabus.

Make the Syllabus a true syllabus and in no way a compend.

Definitions in the Syllabus.

Lists of text and reference books in the Syllabus.

Might a chapter on "Model Questions" in the Syllabus be of value to members of boards of pharmacy?

Should large and small type be used in the Syllabus to indicate required and elective parts of subjects?

Shall the definition of the word "pharmacology" be changed to conform to medical usage?

Moved by H. H. Rusby, seconded by J. A. Koch, that the sub-Committee reports on revision be sent to the Chairman who will submit them by mail to the several members. Carried.

Moved by W. G. Gregory, seconded by W. C. Anderson, that the introductory chapters of the Syllabus be revised by the Chairman. Carried.

Moved by J. A. Koch, seconded by John Culley, that a list of pharmaceutical terms with definitions be included in the Syllabus as a glossary. Carried.

Moved by W. G. Gregory, seconded by W. H. Rudder, that the Secretary make a list of terms to be defined and submit such list to all members of the Committee for suggestions and revision. Carried.

Moved by J. A. Koch, seconded by W. G. Gregory, that lists of text and reference books be eliminated from the Syllabus. Carried.

The question of including a chapter in the Syllabus on Model Questions was discussed at some length. It was the sense of the Committee that such a chapter should be included.

Moved by John Culley, seconded by G. C. Dickman, that the coöperation of officers of the Association of Boards of Pharmacy be invited in the preparation of the chapter on Model Questions. Carried.

Moved by W. G. Gregory, seconded by H. H. Rusby, that the major or required exercises of the Syllabus be printed in large type and the minor or optional exercises be printed in small type. Carried.

Moved by W. G. Gregory, seconded by H. H. Rusby, that the definition of the word "pharmacology" be continued as now given in the Syllabus. Carried.

The Secretary-Treasurer presented his report. It was moved and seconded that the report be received and that it be audited by G. C. Dickman. Carried. (This report is circulated as Bulletin XIX.)

The report of the sub-committee on Materia Medica was presented by H. H. Rusby. Dr. Rusby recommended that the study of botany should be divided into two groups, *viz.*, Gross Structure and Microscopical Structure. This recommendation was adopted.

The report of the sub-committee on Chemistry was presented by J. A. Koch.

The report of the sub-committee on Pharmacy was presented by W. H. Rudder.

Chairman Bradley presented the results of a study of the subjects included by various colleges in a graduate course of one year leading to the degree of Pharmaceutical Chemist after the customary two-year course. Catalogues of more than sixty colleges of pharmacy were examined and it was found that thirty-five offer such a graduate course. Several colleges which are departments of state universities send their students to other departments of the universities for very diverse subjects, some of which have little or no connection with pharmacy. The subjects included in the various courses were classed under the following four heads, the numbers being the number of schools offering such subjects, from a total of thirty-five schools:

Subjects in the department of Materia Medica: Bacteriology, 26; advanced microscopy and micro-analysis, 13; advanced pharmacognosy, 9; toxicology, 9; advanced pharmacology, 6; physiology, 6; hygiene, 3; physiological testing, 3; etc.

Subjects in the Department of Chemistry: Food and drug analysis, 21; pharmaceutical assaying, 20; quantitative analysis, 18; advanced organic chemistry, 17; chemical technology, 9; mineralogy, 9; physiological chemistry, 9; physics, 5; etc.

Subjects in the Department of Pharmacy: Manufacturing pharmacy, 10; dispensing, 10; commercial pharmacy, 6; etc.

Miscellaneous subjects: Modern languages, 8; electives from university courses, 5; mathematics, 3; English, 2; etc.

Moved by W. G. Gregory, seconded by J. A. Koch, that 750 hours be required as a minimum for the third year course. Carried.

Moved by G. C. Dickman, seconded by W. C. Anderson, that Bacteriology be a required subject in the third year course. Carried.

Moved by J. A. Koch, seconded by W. C. Anderson, that Advanced Analytical Chemistry be a required subject in the third year course. Carried.

Moved by W. C. Anderson, seconded by G. C. Dickman, that Advanced Manufacturing Pharmacy be a required subject in the third year course. Carried.

Moved by H. H. Rusby, seconded by W. G. Gregory, that 75 hours of Bacteriology be the minimum requirement for this subject in the third year course. Carried.

Moved by J. A. Koch, seconded by G. C. Dickman, that 300 hours be the minimum requirement in Advanced Analytical Chemistry in the third year course. Carried.

Moved by W. C. Anderson, seconded by G. C. Dickman, that 100 hours be the minimum requirement in Advanced Manufacturing Pharmacy in the third year course. Carried.

The matter of Elective Subjects was then discussed. It was the sense of the Committee that it might with propriety designate Elective Subjects in the various departments.

Moved by H. H. Rusby, seconded by W. G. Gregory, that Micro-Analysis, Advanced Botany, and Physiological Testing be Elective Subjects in the department of Materia Medica. Carried.

Moved by J. A. Koch, seconded by G. C. Dickman, that Advanced Organic Chemistry, Chemical Technology, and Urine Analysis be Elective Subjects in the department of Chemistry. Carried.

Moved by W. G. Gregory, seconded by W. H. Rudder, that Dispensing and Pharmaceutical Jurisprudence be Elective Subjects in the department of Pharmacy. Carried.

Moved by W. C. Anderson, seconded by G. C. Diekman, that the Committee adjourn subject to the call of the Chairman. Carried.

CLYDE M. SNOW,
Secretary-Treasurer.

BULLETIN XXI

BOSTON, MASS., October 10, 1918.

The proposed revision of the section on Chemistry, as prepared by the sub-committee on that subject, has been sent to all members of the Committee, and the revisions of the sections on Pharmacy and Materia Medica will be sent out soon. All members of the Committee are asked to read these sections carefully as they are received, and to send suggestions and criticisms to the Chairman to be considered during the final revisions of the section, before they are published. The mimeographed sheets of the revised sections should be preserved for reference until revised sets are distributed.

The Committee now has the following membership:

FROM AMERICAN PHARMACEUTICAL ASSOCIATION.

Term expires.

- 1919 Edwin L. Newcomb, University of Minnesota School of Pharmacy, Minneapolis, Minn.
- 1920 Eugene G. Eberle, 253 Bourse Bldg., Philadelphia, Pa.
- 1921 Harry B. Mason, P. O. Box 484, Detroit, Mich.
- 1922 George M. Beringer, 501 Federal St., Camden, N. J.
- 1923 Henry H. Rusby, 115 West 68th St., New York, N. Y.
- 1924 Willis G. Gregory, 125 Bedford St., Buffalo, N. Y.
- 1925 William H. Rudder, Salem, Indiana.

FROM AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

- 1919 Clement B. Lowe, 145 North Tenth St., Philadelphia, Pa.
- 1920 William C. Anderson, 315 Greene Ave., Brooklyn, N. Y.
- 1921 Julius A. Koch, Bluff and Pride Sts., Pittsburgh, Pa.
- 1922 Theodore J. Bradley, 179 Longwood Ave., Boston, Mass.

- 1923 Clyde M. Snow, 701 South Wood St., Chicago, Ill.
- 1924 Albert Bolenbaugh, Richmond, Va.
- 1925 Edsel A. Ruddiman, Vanderbilt University, Nashville, Tenn.

FROM NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

- 1919 George C. Diekman, 115 West 68th St., New York, N. Y.
- 1920 Mason C. Beebe, 75 Church St., Burlington, Vt.
- 1921 John Culley, 2479 Washington Ave., Ogden, Utah.
- 1922 Ellis F. Faulkner, Delton, Mich.
- 1923 Charles H. Skinner, Windsor, Vt.
- 1924 Otto W. Osterlund, 46th St. and Baltimore Ave., Philadelphia, Pa.
- 1925 George W. McDuff, 2712 Magazine St., New Orleans, La.

E. A. Ruddiman and G. W. McDuff are hereby appointed as members of the sub-committee on Chemistry to fill existing vacancies.

Corrected list of members of sub-committees:

MATERIA MEDICA.

H. H. Rusby, *Chairman.*
M. C. Beebe.
G. M. Beringer.
John Culley.
E. F. Faulkner.
C. B. Lowe.
E. L. Newcomb.

CHEMISTRY.

J. A. Koch, *Chairman.*
T. J. Bradley.
E. G. Eberle.
G. W. McDuff.
O. W. Osterlund.
E. A. Ruddiman.
C. H. Skinner.

PHARMACY.

W. H. Rudder, *Chairman.*
W. C. Anderson.
Albert Bolenbaugh.
G. C. Diekman.
W. G. Gregory.
H. B. Mason.
C. M. Snow.

(Signed) THEODORE J. BRADLEY.
Chairman.

THE PHARMACIST AND THE LAW.

U. S. P. LIMITATION REMOVED FROM
T. D. 2,760.

Treasury Decision 2,760 revised, T. D. 2,576 and the paragraph which has now been amended read:

"Medicaments.—As the minimum dosage each liquid ounce of the completed preparation must carry in it approximately an average U. S. P. dose for an adult of some drug or drugs of recognized therapeutic value, either singly or in compatible combination."

"U. S. P." has been eliminated; without this modification it would have been unlawful to use any new drug which might be discovered in the manufacture of an alcoholic medicinal compound without the payment of the special tax, because such drug would not be U. S. P.

SACCHARIN STILL AN ADULTERANT.

Use of saccharin in foods still is regarded as an adulteration under the Food and Drugs Act by the Department of Agriculture. Requests for reversal, or at least reconsideration of an old ruling on this subject is denied by the department. It is held saccharin, as a substitute for sugar, reduces the food value, and persistent use of it is likely to impair digestion.

BECAUSE OF INFLUENZA PRESCRIPTIONS FOR NARCOTICS MAY BE
REFILLED.

Because of the spread of the Spanish influenza epidemic and the difficulty in obtaining immediate medical attention, the collector of internal revenue of the New York port has received notice of the modification of the narcotic laws, whereby prescriptions containing morphine, codeine or heroine may be refilled. The notice follows:—

INTERNAL REVENUE.

Refilling Narcotic Prescriptions. Modifying Article II of Regulations No. 35.
To Collectors of Internal Revenue and Others Concerned:—

Owing to the extent of the epidemic of Spanish influenza now prevailing in this country and consequent difficulty of persons in getting immediate medical attention and medicaments upon prescriptions issued by physicians, the provisions of Article II of regulations are modified as follows:—

Prescriptions calling for morphine, codeine or heroine which are written by registered

practitioners for patients suffering from Spanish influenza and any pulmonary or bronchial affections, may, until further notice, be refilled, provided that at the time of issuance by physicians instructions are noted in the body of such prescriptions, "Repeat if necessary," and the druggist filling and refilling the same shall note thereon each and every date upon which such prescription is refilled.

DANIEL C. ROPER,

Commissioner of Internal Revenue.

Approved October 22, 1918.

L. S. ROWE,

Acting Secretary of the Treasury.

COLGATE & CO. INDICTMENT DIS-
MISSED.

Holding that the indictment failed to charge any offense, either in restraint of trade and commerce under the provisions of the Sherman Anti-Trust Law or under any other law of the United States, Judge Edmund Waddill, Jr., in the Federal District Court sustained the demurrer and quashed the indictment in the case of the United States against Colgate & Co., charging violations of the Sherman Anti-Trust Law.

A. Leo Everett, counsel for N. W. D. A., has commented on the decision as follows:—

"Colgate & Co. adopted the practice of selling its goods with the information to the purchaser as to the price at which they should be resold by him. The purchaser at the same time was informed that if he failed to maintain the price Colgate & Co. would refuse to have further dealings with him. While this practice did not involve a contract, its effect upon price maintenance has been as efficacious as if a contract had been entered into. The legality of the method thus adopted has been completely sustained by Judge Waddill. The decision is all the more significant because it follows upon a series of injunctions issued by the Federal Trade Commission prohibiting the use of such methods. Of course, the statute creating the Federal Trade Commission gives it power to enjoin not only acts prohibited by law, but practices which it may consider 'unfair.' The Federal Trade Commission's rulings, however, are based, in part, at any rate, on findings that such practices are contrary to law. As to such findings, the Federal Trade Commission has been overruled, and the decision of the court is paramount. The Federal Trade Commission may, perhaps, continue to

grant such injunctions on the ground of unfairness, but its jurisdiction to do this is questionable, and it would be a doubtful policy on its part to invite a discussion of its power to transcend the law as laid down by the courts. The manufacturers of many proprietary articles have, naturally, for some time been much disturbed about the legality of their selling methods, and they are to be congratulated upon a decision which removes all doubt and permits them to sell according to principles justified by sound economics."

FORMULA DISCLOSURE CASE DECIDED IN FAVOR OF E. FONGERA & CO

By a decision of the Court of Appeals of the State of New York, all judges concurring in the result, the judgment of the Appellate Division

of the Supreme Court in permanently enjoining the enforcement of the so-called "formula disclosure" ordinance, has been sustained.

The Goldwater ordinance (New York) was enacted in December 1914, and required either the disclosure of the ingredients on a package, or the filing of the names of the ingredients with the (New York) Department of Health. The ordinance was to have become effective January 1, 1916, but bills for an injunction were filed in the Supreme Court. It was then agreed to submit the points claimed by the Board of Health and by E. Fongera & Co. to the Appellate Division of the Supreme Court, which held that the ordinance was in violation of the State constitution in that it did not constitute a reasonable exercise of the police powers. The city appealed to the Court of Appeals, with the result now reported.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus.

HENRY MILTON,

From 2342 Albion Place, St. Louis, Mo.

To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

(Continued from p. 930, October issue.)

MULFORD, H. K.

From 212 Pembroke Ave., Wayne, Penna.
To Camp Devens, Mass.

BURKETT, K. S.

From 1620 Antoin St., Pittsburgh, Pa.
To 1613 S. Ave., Altoona, Pa.

FAULKNER, JOHN W.

From 5207 S. Warner St., Tacoma, Wash.
To 5224 S. Birmingham St., Tacoma, Wash.

GIDLEY, W. F.

From 123 Russell St., La Fayette, Ind.
To 250 Hillside Ave., Jamaica, Long Island,
N. Y.

THURSTON, AZOR

Room 320, 17th St., Columbus, Ohio.
To 2015 N. High Ave., Columbus, Ohio.

TABER, JOSEPH M.

From Elko Co. Hosp., Elko, Nev.
To care Wilson Drug Co., Reno, Nev.

SCHLEUTER, ROBERT E.

From 510 Metrop. Bldg., St. Louis, Mo.
To Base Hosp., Camp Hancock, Augusta,
Ga.

JOPLING, JOHN C.

From 310 N. Illinois St., Indianapolis, Ind.
To P. O. Box 613, Indianapolis, Ind.

McWILLIAMS, HERSCHEL B.

From 1100 Grand Ave., Washington, Ind.
To School of Ph., Corvallis, Ore.

BLANK, H. C.

From Lexington Court, Carnegie, Pa.
To Wilcox, Pa.

GAHN, HENRY

From Pensacola Quarantine, Pensacola, Fla.
To Marine Hosp., Wilmington, N. C.

WILLIAMS, S. A.

From Elm St., Troy, Ala.
To Box 224, Troy, Ala.

MACKENZIE, R. H.

From 2340 Dahlia St., Denver, Colo.
To Leadville, Colo.

STOCKING, C. H.

From 448 Bancroft Ave., Indianapolis, Ind.
To 438 Harvard St., Indianapolis, Ind.

NORTH, SERG. HERMAN H.

From Early Treatment Station, 12 Clay St.
To Early Treatment Station 31, South Warren St., Trenton, N. J.

- HOFFER, R. R.
From 2332 W. Jefferson Ave., Detroit, Mich.
To 2260 W. Jefferson Ave., Detroit, Mich.
- BUSCH, H. P.
From The Gladstone, 11th & Pine Sts., Philadelphia, Pa.
To 1006 Spruce St., Philadelphia, Pa.
- NORRIS, WM. P.
From 14 South Sacramento Blvd., Chicago, Illinois.
To 2509 Western Ave., Peoria, Ill.
- RABINOWITZ, WM. J.
From care A. Daily, Rosenberg, Texas.
To Simonton, Texas.
- HUNT, F. L.
From 5 Brown Ave., Chicago, Ill.
To care Multnomah Lumber & Box Co., Portland, Ore.
- BARNSTEAD, S. O.
From New Lebanon, N. Y.
To care Wm. S. Merrell Chem. Co., 340 McGregor Ave., Cincinnati, O.
- KAPLAN, S. S.
From 1646 W. 47th St., Chicago, Ill.
To 4959 Ashland Ave., Chicago, Ill.
- MERNER, P. M. P.
From 89 Auburn Ave., Sierra Madri, Cal.
To 707 Addison St., Palo Alto, Cal.
- PUREL, V. H.
From 2632 Gov. Nicholls St., New Orleans, La.
To 2936 Ursuline Ave., New Orleans, La.
- SMITH, WM. M.
From 1720 Green St., Philadelphia, Pa.
To Trevorton, Pa.
- EATON, E. O.
From 11 Winan St., East Orange, N. J.
To 972 Sutter St., San Francisco, Cal.
- FISK, F. E.
From 116 E. 39th St., Indianapolis, Ind.
To 4926 Park Ave., Indianapolis, Ind.
- LEAVITT, A. J.
From 900 W. Lake, Pasadena, Cal.
To 537 No. Chester Ave., Pasadena, Cal.
- HERETH, F. S.
From Richmond, Cal.
To P. O. Box 7, Berlin, N. H.
- EDISON, F. V.
From Thomasville, Ga.
To H. A. 2nd Class Navy Yard, Navy Dispensary, Charleston, S. C.
- WITT, CHAS. A.
From 2212 Sedgwick St., Chicago, Ill.
To 309 Huntington Ave., Boston, Mass.
- STRAWN, M. E. (MISS)
From 213 St. Clair Ave., Detroit, Mich.
To 459 Pennsylvania Ave., Indianapolis, Ind.
- RHODEHAMEL, H. W.
From 638 E. 48th St., Indianapolis, Ind.
To 3323 College Ave., Indianapolis, Ind.
- BAUM, F. C.
From Hosp., Ft. Slocum, N. Y.
To Trs. 99, Hosp., Ft. Slocum, N. Y.
- WHITMORE, GEO. C.
From 601 Harrison Ave., Leadville, Colo.
To care Scholtz Drug Store, Denver, Colo.
- MEAD, H. D.
From Wyncote, Pa.
To Woodstown, N. J.
- BAIER, A. E.
From 322 Liberty Ave., Alliance, Ohio.
To Base Hosp. No. 27, A. P. O. Via New York, France.
- CHASE, W. M.
From Base Hosp., Camp Custer, Mich.
To 1st Lieut. San. Corps, Camp Medical Supply Office, Camp Wadsworth, S. C.
- CRAIG, H.
From care Frederick Stearns Co.
To care Nyal Co., Detroit, Mich.
- PIGOTT, D. D.
From Hattiesburg, Miss.
To care Mrs. M. E. Pigott, R. F. D. No. 7, Tybertown, Miss.

DECEASED.

- SCHMIDT, F. M.
5 Wabash Ave., Chicago, Ill.
- KRAMER, J. E.
195 Exchange St., Rochester, N. Y.
- LATHAM, THOMAS
1309 3rd St., New York, N. Y.
- GALLAGHER, J. C.
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BOOK NOTICES AND REVIEWS.

The United States Public Health Service has just issued the following publication:

HYGIENIC LABORATORY BULLETIN NO. 112.

I. *Phenols as Preservatives of Antipneumococci Serum*.—A Pharmacological Study. By Carl Voegtlin. Reports results of experiments made to determine the suitability of trikresol and phenol as preservatives in antipneumococci serum.

II. *The Nature of Contaminations of Biologic Products*. By Ida A. Bengston. A study of the various contaminating organisms found in different classes of biologic products.

III. *The Effect of Ether on Tetanus Spores and on Certain Other Microorganisms*. By H. B. Corbitt. Report of observations made showing that ether cannot be relied upon to kill tetanus spores in vaccine virus.

This publication costs the Government considerable money and copies will be sent only to those making specific request for the same, and will not be distributed automatically as heretofore to all names appearing on the Bureau mailing list.

Proceedings Seventh Annual Meeting of American Drug Manufacturers' Association.—The Proceedings of the Seventh Annual Meeting of the American Drug Manufacturers' Association, held January 29 and 30, 1918, has just

been issued. It is a book of about 350 pages and contains as frontispiece a picture of the late Henry J. Woodward, of Allaire Woodward & Co., Peoria, Ill. There are also inserts of the speakers and invited guests of the smoker and the banquet given at the Waldorf-Astoria. The address by Prof. Henry Kraemer, "Kultur vs. Culture," was delivered at the smoker. It was illustrated by stereopticon slides and received much favorable comment, and thereafter printed in several pharmaceutical publications. The speakers at the banquet were Hon. Abram I. Elkus, U. S. Ambassador to Turkey; Hon. Theodore E. Burton, ex-Senator, and Rt. Rev. Charles S. Burch, Bishop Suffragan of the Diocese of New York. These instructive addresses add value to the book as a library volume. Another interesting address was delivered by Dr. Fred B. Kilmer on the subject "After the War—What?"

The address of President Chas. J. Lynn comprised a review of drug activities and legislation, discussing various subjects at considerable length. The reports of other officers and committees are likewise of value, but the greatest interest to the greater number of this Association is that of the Committee on Standards, which with discussion on the topics occupies about one hundred pages. This report should have a wider distribution.

OFFICERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION 1918-1919.

President—Charles H. LaWall, 39 South 10th St., Philadelphia, Pa.

Honorary President—Oliver F. Fuller, 540 W. Randolph St., Chicago, Ill.

First Vice-President—F. W. Nitardy, 66 Orange St., Brooklyn, N. Y.

Second Vice-President—Theodore J. Bradley, 70 St. Botolph St., Boston, Mass.

Third Vice-President—Francis Hemm, 2108 Locust St., St. Louis, Mo.

General Secretary—William B. Day, 701 So. Wood St., Chicago, Ill.

Treasurer—Henry M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Reporter on the Progress of Pharmacy—H. V. Army, 115 West 68th St., New York, N. Y.

Editor of the Journal—E. G. Eberle, 253 Bourse Bldg., Philadelphia, Pa.

Local Secretary—Hugo H. Schaefer, 115 West 68th St., New York, N. Y.

Chairman of the Council—Lewis C. Hopp, 1104 Euclid Ave., Cleveland, Ohio.

Secretary of the Council—J. W. England, 415 North Thirty-third St., Philadelphia, Pa.

EDWARD ROBINSON SQUIBB

BROOKLYN, N. Y.

Born July 4, 1819—Died October 25, 1900.

"His recognized ability and well-known integrity raised the standard and set in motion forces tending toward better pharmacy, the influence of which is felt unto this day."—John F. Patton, Presidential Address, Proceedings A. Ph. A. 1901, p. 7.



Very truly yours,
E. S. Quibb

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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NO. 12

EDWARD ROBINSON SQUIBB.

A number of reasons, that will become apparent, prompt the presentation of this sketch.

Dr. E. R. Squibb was born at Wilmington, Del., July 4, 1819, hence the New York meeting of the American Pharmaceutical Association will be held during the centennial year of his birth.

In 1857 Doctor Squibb aided in the establishment of a medical supply laboratory in Louisville, Ky., and the chief medical purveyor of the Army induced him to establish the laboratory in Brooklyn. His work in the interest of the Army and Navy, pharmacy and medicine, is a matter of record. The report of the Committee on Drug Market, A. Ph. A., of 1863, of which he was chairman, is comprehensive, and some of the items, under discussion, were subjects of recent considerations.

We quote from a paper by Prof. Curt P. Wimmer on "Edward R. Squibb's Lecture Course in Pharmacy," before the Historical Section, A. Ph. A., at Chicago:

"In his (Doctor Squibb's) introductory lecture (1869), he wrote on the black-board: 'A pharmacist is not a druggist,' and by way of explanation said: 'A druggist is a merchant in drugs, a dealer in substances which, though originally used in medicines, came to be used in many other arts. The pharmacist, synonymous with pharmacist and apothecary, but not with druggist or chemist, is an educated, qualified practitioner of the art of pharmacy. He is a dealer in substances used to prevent and relieve distress; who has the knowledge and skill to secure a proper quality in his merchandise; to prepare this for its ultimate uses; and to secure it against accidental and criminal misapplication. The druggist is a merchant like the grocer, the dry goods dealer, etc. The pharmacist may be all this, but must be very much more.'"

The following data are taken from a sketch prepared some years ago:

"Edward R. Squibb served an apprenticeship with pharmacists of Philadelphia from 1837 to 1842, as a preparation for the study of medicine. He graduated from Jefferson Medical College in 1845, served as assistant demonstrator of anatomy and practised medicine until 1847, when he entered the Navy as assistant surgeon and saw active service for four years. In 1852 he was transferred to the Naval Hospital in Brooklyn, then under the direction of Dr. Franklin Bache.

While serving in the Navy he observed the poor quality of many of the medical supplies furnished on contract. Through their efforts, Congress was led to consider 'quality first and price second.' In 1857 he resigned his commission to aid in establishing a medical supply laboratory in Louisville, Ky. His success attracted the attention of the chief medical purveyor of the Army, who induced him to establish a laboratory in Brooklyn, N. Y. In December 1858, when scarcely well under way, the laboratories were destroyed by fire, and while attempting to save his books his face and hands were terribly burned. In 1869, after having declined flattering offers to teach in the colleges of medicine, he accepted the chair of pharmacy at the New York College of Pharmacy, but did so on two conditions—he was to receive no pay and he was not to be called Professor. He held this position until 1872. He joined the American Pharmaceutical Association in 1855 and was made a life member in 1900. He was its vice-president in 1858-59. In 1873 he received the honorary degree of Doctor of Pharmacy. He was a member of the Pharmacopoeial Revision Committee of 1860; a member of the Convention for the Revision of 1870, but refused to serve on the committee; elected a member of the Convention for the Revision of 1880, but resigned. The convention of 1900 thanked him for his painstaking work in the realm of pharmacy for fifty years, and for the unselfish manner in which he had always placed the result of his labors at the disposal of the several committees of revision."

As a member of the American Pharmaceutical Association, Doctor Squibb took an active part in its deliberations, as evidenced by the pages of the Proceedings. His studies and work in improving the process of percolation are printed in the Proceedings of 1865, 1866, 1867 and 1872. A paper by him "Notes and Suggestions upon Some of the Processes of the United States Pharmacopoeia, Especially Directed to the Committee of Revision," contains in outline his process for the manufacture of ether, spirit of nitrous ether, etc., and pleads for the introduction into the Pharmacopoeia of "that which relates to simple, reliable tests of purity of its materials and products."

Doctor Squibb was an indefatigable worker, a careful observer, possessed of high intellectual attainments, and actuated by positive convictions. He was a pioneer manufacturer of pharmaceuticals and chemicals, having entered the fields of American pharmacy soon after the organization of the American Pharmaceutical Association.

E. G. E.

OFFICERS-ELECT OF AMERICAN PHARMACEUTICAL ASSOCIATION, 1919-1920.

The result of the vote by mail, for officers of the American Pharmaceutical Association, has been announced as follows:

President—L. E. Sayre, Lawrence, Kas.

First Vice-President—Theodore J. Bradley, Boston, Mass.

Second Vice-President—Harry Whitehouse, Johnson City, Tenn.

Third Vice-President—E. Fullerton Cook, Philadelphia, Pa.

Members of the Council—J. H. Beal, Urbana, Ill.; Charles H. LaWall, Philadelphia, Pa.; S. L. Hilton, Washington, D. C.

EDITORIAL

E. G. EBERLE, Editor

253 Bourse Bldg., PHILADELPHIA

THE HOLIDAYS.

A FLOOD of emotions consonant with a cheerful, happy time of charity and good fellowship is borne upon us by this joyful season.

While our thoughts are, naturally, with those who are near and dear to us, we cannot be forgetful of those who gave themselves as a sacrifice for the cause of our country, and of those who are sorrowful because of their loss and affliction. The present time is, therefore, most opportune for participating in the undertaking of the American Pharmaceutical Association in behalf of our soldier and sailor pharmacists, outlined on page 1005 of the November issue of the JOURNAL and further explained in the pages of this number. We join in many worthy purposes during this season, but this resolution presents a special, unusual opportunity to evidence our fellowship and convey assurance to the Government and to the public that we are optimistic relative to the mission of pharmacy, and convinced of its importance to humanity. Pharmacy will be judged, more than ever before, by the estimate we put upon ourselves.

We extend our greetings—"A Merry Christmas for All," and arrange the words of our Christmas Wish in this way: That our impulses will be actuated by a desire to be of service to others, and to ourselves; that our strength may be equal to the greater duties that have come upon us—as citizens, as pharmacists and as members of this Association. May all of us be able to bring joy to others and thereby share the rich heritage of the giver!

The most eventful year of history is coming to a close, bringing us to a new year fraught with equally important, though very different problems. We share in the responsibilities as citizens, but the discoveries in medicine during the war bring the need of research work to pharmacists. The present high standards demanded by the medical profession point to the necessity of having a larger number of trained pharmacists who can and will collaborate in related pharmaceutical research. Pharmacy is part of the mosaic, medicine, and permanent results of the discoveries are dependent upon the intelligent coöperation of the several branches. We have before us a wide field for our activities and the possible benefits therefrom for humanity, and the advancement of pharmacy should spur us on to our very best efforts. It is only by good team work, genuine co-operation, sympathy and a measure of unselfish devotion that real success can be achieved in the field of medicine.

We should be masters of our profession and see that pharmacy does not lag, especially during this period when great progress must and will be made in all

the industries and professions. There is no incompatibility between a strict observance of professional ethics and good business management. In the drug business, with which pharmacy is associated, the latter is essential; in fact, the success of a business or profession, in this respect, in a degree, is a measure of its importance. While it is highly desirable that pharmacy be given more recognition in the drug store, and the separation of pharmacy from the multiplicity of stock that characterizes many of the modern drug stores a consummation to be hoped for, there is no reason why a properly conducted pharmacy should not be possible within a drug store. The truth is, the greater number of our foremost pharmacists, due to present environments, are also merchants, who are observant of business and professional ethics. Ethics is the doctrine of man's duty in respect to himself and the rights of others. The course of progress in pharmacy should be directed for the benefit of the greatest number. The business of the drug store should be conducted according to modern ideas and methods.

Our wish for a Happy New Year conveys the hopes for a liberal share of prosperity and the joy of good health. We bespeak your intensified interest for pharmacy and the Association. If the revenue of the JOURNAL is augmented the possibilities for other work of the Association are increased. The encouragement of new patrons for the advertising pages is one of the means to that end. These have been trying times for publications and the difficulties are not immediately overcome by the prospects of peace. A word from the members to possible advertisers is worth more than a letter of solicitation from the office, therefore your coöperation is asked for.

Work in the Association gives pharmacists the opportunity of expressing their thoughts concerning pharmacy and the drug business—of exerting their influence; a broader viewpoint is developed and a higher appreciation of their co-workers is inspired.

The substance of our message finds expression in the following: That pharmacy may progress during 1919 through a greater enthusiasm and better coöperation among the members of the Association; a willingness to make some personal sacrifices so that pharmacy and the Association may become more effective as an agency for good to the votaries, and of greater service to humanity. That there may come the realization that however much pharmacists may have done for pharmacy and the Association, they, themselves, have profited more, by giving. That pharmacists and druggists may develop a larger measure of professional and business efficiency, upon which the world is now putting so large a premium. That the year 1919 will be the biggest year in the world's history for pharmacy and the drug business, because the achievements, successes and progress of the past are added to its opportunities.

E. G. E.

A PROPOSED RESEARCH INSTITUTE.

ON the evening of November eighth, the New York Section of the American Chemical Society held a highly interesting and important meeting at which the subject under discussion was the founding of a research institution with a capitalization of from one to five million, for the purpose of coöperative study of the chemistry and pharmacology of synthetic organic chemicals, designed for medical use.

The meeting was arranged by the chairman of the Section, Dr. Charles H. Herty, who, in one of the editorials in the September number of the *Journal of Industrial and Engineering Chemistry*, had submitted the proposition in general terms to the ten thousand members of the American Chemical Society. Other addresses were made by representatives of the Bureau of Chemistry, of the Rockefeller Institute, of the Mellon Institute, of the drug manufacturers and of the tar products manufacturers. Curiously enough, the one group which has been attempting work along this line, the Council on Pharmacy and Chemistry of the American Medical Association, was not represented unless Doctor Alsberg is considered in a dual rôle of head of the Bureau of Chemistry and member of the Council on Pharmacy and Chemistry.

It is a matter of interest to note that at least two of the speakers are members of the American Pharmaceutical Association and it is hoped that this presages that when the institute comes into being, American Pharmacy will be adequately represented.

The movement is one of vital importance to every member of the A. Ph. A. and furnishes the best argument for the federation idea which is now dominant in American Pharmacy. It also proves the need of aggressive work on the part of the Research Committee of our Association.

Critics of the A. Ph. A. say that while we talk, others act. There is a very present danger if we do not bestir ourselves and act right now the sneer will become a fact. For twenty years we have talked of an institution somewhat resembling the one that Doctor Herty has in mind: notably in 1901, when the Procter memorial was under discussion and in 1912, when an A. Ph. A. Home was discussed on the pages of this JOURNAL. The Procter Memorial resolved itself into a statue without a site or a pedestal; the A. Ph. A. Home is in a somnolent condition; and now, while we are talking about federation, an organization but remotely interested in medicine and pharmacy takes up a proposition that all branches of American Pharmacy could and should have brought about years ago.

The foregoing paragraph is not intended as pessimism. It bluntly states unpleasant facts in an endeavor to stir American Pharmacy into action. The American Pharmaceutical Association, during its sixty-six years of existence, has ever held aloft the beacon light and urged American Pharmacy to "follow the

gleam," and it is not always the Association's fault that what it has proposed has not been carried out.

Such is strikingly the case in the present situation. If the proposed research institute does come into being without proper pharmaceutical representation, the blame will rest on the entire personnel of American Pharmacy and not merely on the pathfinder—the American Pharmaceutical Association. H. V. A.

DISCONTINUANCE OF THE STUDENTS' ARMY TRAINING CORPS.

IN the November issue of the JOURNAL considerable space was devoted to the Students' Army Training Corps and an approved Pharmacy War Course. A number of schools made preparations for giving these military students a training and education in pharmacy, and quite a number of enlisted men were enrolled. Now, before the first term of instruction has been completed, comes the order for immediate demobilization. We have no direct information, at this writing, that the order applies, immediately, to pharmacy schools, but presume this is the case; whether this is the effect of the order or not, the comment will apply in a general way.

The S. A. T. C. proposition was a new one; the thought uppermost in the minds of the people was preparation for war, so it would have been surprising if the devised plan for educating young men while training them for military service had proven entirely satisfactory to all concerned. The military training was of prime importance in the scheme, hence, the various institutions, engaging in the work, were lost in the process of military standardization.

It would seem that, financially, the Government is responsible to the schools or colleges for the terms of its contract with them or, if not, obligated to an adjustment of the expenses incurred by these institutions in preparing to meet the requirements of the Government. Most educational institutions, including those of pharmacy, were seriously handicapped by the war and, while the S. A. T. C. was looked upon as an opportunity for carrying on the work of the schools, their acceptance of the plan was, in a measure, prompted by a desire to coöperate with the Government. Taking these facts into consideration, the opportunity for experimentation might have been improved by studying the adaptability of the courses for universal military training. If the latter is adopted then education of the youth must also be provided. True, our military schools have solved the problem, but pharmacy should also be taught, and here was an opportunity which might have been tested out. The same thought applies to other branches. It would have been necessary to rearrange the courses by reintroducing the flexibility and individuality of the institutions wherein these courses had been installed, but this would have enabled them to continue their work, even though the number of students had been materially reduced.

While most of the medical schools entered into the S. A. T. C. plan, because it was a war measure, they were ready to discontinue the program when hostilities ceased. It is probable that pharmacy and technical schools would have preferred to continue the course under a rearrangement of the teaching schedule. And, if a system of universal training, applying to the young men under twenty years, is to be established, this might have afforded an opportunity for studying applicable educational methods.

Evidently, retrenchment is the chief reason for the order, though there has been an expressed disappointment at the working plan; experience would certainly have developed improved and more satisfactory methods. If the order is put into effect schools will sustain a financial loss which the Government should adjust.

E. G. E.

OFFICIAL STANDARD FOR CAFFEINE SODIO-BENZOATE.

BY A. B. LYONS.

According to the U. S. P. IX caffeine sodio-benzoate when dried to constant weight at 80° C. contains not less than 46 percent nor more than 50 percent of anhydrous caffeine, the remainder being sodium benzoate ($\text{NaC}_7\text{H}_5\text{O}_2$). It is not easy to account for so wide a margin of variation as this in a product which calls for so little skill in its manufacture. It is understood that originally it was prepared by combining caffeine and sodium benzoate in equal proportions. Official caffeine is a crystallized product, not liable to contain impurities, but variable in the amount of water of crystallization it carries. The crystals contain nearly 8.5 percent of H_2O to begin with, but by exposure to dry air they lose a considerable proportion of this, so that under ordinary conditions they retain less than half the original quantity. By exposure to a moist atmosphere they recover the water they have lost unless they have been rendered quite anhydrous, in which condition they apparently refuse to take up more than about 3 percent of moisture, practically one-third of one molecule of H_2O .

Grant that caffeine may contain as much as 9 percent of H_2O , and that it may possibly be quite anhydrous, a mixture of this with an equal weight of pure dry sodium benzoate would contain after drying completely at 80° C. at least 47.69 percent, at most 50 percent, of anhydrous caffeine. An allowance of 0.5 percent for inaccuracies in weighing would make these figures, respectively, 47.45 and 50.25 percent.

The assumption that the remainder of the product is pure $\text{NaO}_7\text{H}_5\text{O}_2$ is not consistent with the "rubric" for official sodium benzoate, which is allowed to contain 1 percent of impurity as shown by alkalinity of the ash. Whether or not this impurity is non-volatile the test does not show, so that it is not possible to say exactly how the figures arrived at above will be affected, but it would appear that a range of 47 to 50 percent ought to cover the practical possibilities, making no assumption of expert knowledge on the part of the manufacturer.

But it is the manufacturer who is most competent to decide the question what standard is most just to all parties concerned. Money values of course come

into consideration where costly drugs are concerned, but only subject to the standards and requirements of the pharmacopoeia, where such exist. In the present instance, we have the clear statement that official caffeine has a molecular formula including nearly 8.5 percent of water of crystallization. It is this product and no other which he will use in making the double salt, just as it is sodium benzoate containing not less than 99 percent of $\text{NaC}_7\text{H}_5\text{O}_2$ that he will use as the second constituent of an ideal product.

In practice he will find probably that the caffeine has lost a portion of its water of crystallization, and it may be that the sodium benzoate contains some hygroscopic moisture, and so the quantities of each which he will take to make caffeine sodio-benzoate will be adjusted to the ideal standard and his product will assay for the U. S. P. method somewhere near 47.7 percent of anhydrous caffeine. Merck's product is stated to contain 47.9 percent. There is no reason why any great range of variation should be permitted, since the manufacturer can be trusted to make a correct adjustment in the quantities of caffeine and of sodium benzoate which he uses. In the case of official chemical salts and similar products it appears that variations of more than one-fourth of one percent are not considered excusable. It is certainly not more difficult to adjust the caffeine content of the double salt to a correspondingly narrow range, perhaps between 47.3 and 48.0 percent, and the range having been fixed, there should be no difficulty in keeping within such limits.

It will be noticed that this range is much narrower than that arrived at in the initial discussion above. The reason for the discrepancy is that in that discussion the possibility was admitted of presence in the sodium benzoate of a considerable quantity of hygroscopic moisture, whereas the manufacturer maintains the ideal of a salt which *without drying* is at least 99 percent pure. We can see no reason why his assumptions should not be adopted as a basis for the official requirements for this product.

THE EFFECT OF ALCOHOL ON PITUITARY EXTRACT.

BY HERBERT C. HAMILTON.

It not infrequently happens that when a salesman, detail man or other member of a firm of manufacturers of pharmaceutical products is confronted with the statement that a certain preparation fails to act in its accustomed manner, he points out a number of possible factors in attempting to find the cause in the particular case.

Pittenger presented a paper before the Scientific Section of the A. Ph. A. 1918 meeting (published in the October issue of the Journal) in which he notes one such instance where the well-known fact that alcohol precipitates the active constituent of pituitary extracts had been advanced as the possible explanation of a failure of this preparation to act on the uterus muscle.

The writer whose discussion of this paper on the floor is not given in the published proceedings corroborated the facts there presented and noted that the question had come up on more than one occasion and that laboratory experiments had in every case shown that alcohol in the quantity present could not affect the activity of this preparation unfavorably.

The subject seems important enough to be carried somewhat further in order to explain fully the conditions under which alcohol can affect the pituitary extract unfavorably.

The writer has observed that a commercial sample of pituitrin shows an opalescence from the action of strong alcohol but that a mixture of equal parts pituitrin and 95% alcohol shows no permanent opalescence and no precipitate. Diluted and injected into the circulation of an anesthetized dog in the usual method of testing there is no perceptible lowering of its activity. This is very much in excess of the possible alcohol content from washing the syringe or the site of injection.

A further experiment has been carried out on a highly active dry pituitary product. This material was ground in a mortar and rubbed thoroughly with 95% alcohol adding successive portions and filtering the alcohol to obtain a clear solution.

Three series of tests were made on the resulting products, namely, tests of the dry material after being washed with alcohol, tests of the residue remaining on recovery of the alcohol, first, an aqueous solution of this residue and second a hydro-alcoholic solution of the residue.

The results of these tests showed that 95% alcohol is not a solvent for the active principle nor has it any deleterious action; the active agent was no less active and the residue from evaporation of the alcohol had neither pressor nor oxytocic activity.

The only reaction between alcohol and pituitary extracts is when the former is present in great excess, in which case it acts as a precipitant.

RESEARCH LABORATORY OF PARKE DAVIS & CO.,
DETROIT, MICH.

THE DETERIORATION OF TINCTURE OF DIGITALIS.*

BY PAUL S. PITTENGER.

In a recent publication entitled "The Deterioration of 'U. S. P.' and 'Fat-Free' Tinctures of Digitalis," Pittenger and Mulford, Jr.,¹ gave the results of a series of experiments which were carried out with two objects in view:

First, to show that Tinctures of Digitalis deteriorate quite rapidly and

Second, to advance experimental data to disprove the statements made at several medical society meetings, that fat-free preparations deteriorate more rapidly than the regular U. S. P. tincture.

The results of physiologic assays made on each of 15 samples five and eight months, respectively, after the first test, were given to substantiate the author's claims that "Most tinctures of digitalis *do deteriorate*" and that "Fat-free tinctures of digitalis *do not deteriorate at a greater rate than the U. S. P. tincture.*"

Since publication of the above paper, Hamilton in a recent publication² takes exception to the results given because the fifteen samples tested showed an average

* Read before Scientific Section, A. Ph. A., Chicago meeting, 1918.

¹ Pittenger and Mulford, Jr., JOURNAL AMERICAN PHARMACEUTICAL ASSOCIATION, March 1918, p. 236.

² Hamilton, "The Deterioration of Digitalis Extracts," JOURNAL AMERICAN PHARMACEUTICAL ASSOCIATION, May 1918, p. 433.

deterioration of 34.8 percent in 8 months which he states "would lead one to infer that the tincture is practically worthless." Exception was also taken to the fact that the regular tinctures made with 50 percent alcohol showed an average deterioration of 47.8 percent and that the Fat-free Tinctures made with 80 percent alcohol showed an average deterioration of 40.7 percent, while the Fat-free Tinctures made with 50 percent alcohol showed an average deterioration of only 22.8 percent. "From this" the author states "one might conclude that a tincture is of little value unless made by extracting fat-free leaves with 50 percent alcohol, since Fat-free Tincture with 80 percent alcohol is apparently no more stable than that with less alcohol."

It was not the intention of the authors to use the results given to show the average rate of deterioration of Tinctures of Digitalis or to claim, or infer that a tincture made with 80 percent alcohol was less stable than one made with 50 percent alcohol. In fact, several years ago when the menstruum for the U. S. P. Tincture was 50 percent the author carried out many tests on the comparative rate of deterioration of Tinctures of Digitalis made with menstrua of 50, 60, 70 and 80 percent of alcohol, respectively, and found that as a general rule the higher the percentage of alcohol employed the slower the rate of deterioration. On the basis of these experiments we raised the alcoholic content of our digitalis specialties to 80 percent several years before the U. S. P. increased the percentage of alcohol in the official tincture.

Unfortunately, in the set of experiments quoted, for some unknown reason the opposite condition of affairs prevailed.

I therefore thoroughly agree with Hamilton in that "It seems improbable that tinctures with low alcoholic content would be uniformly found more stable than when extracted with 80 percent alcohol, whether the drug was fat-free or not," also "that no data either good or bad should be accepted as representing the average condition of digitalis after any particular period of aging."

This latter point is clearly illustrated in the paper by Hamilton, referred to above, in which the results of a series of experiments by Houghton and Hamilton¹ on Tinctures of Digitalis made with 50 percent alcohol are given with the following conclusion: "*That a maximum average loss of 10 percent a year can be expected in tinctures or fluidextracts of digitalis.*" On the same page are given the results of experiments carried out by Rowe on 6 Tinctures of Digitalis made with 70 percent alcohol in which he found an average loss on 6 samples of 21 percent in 6½ months.

Owing to the deterioration which occurs in digitalis preparations, we established, 4 or 5 years ago, a routine by which all tinctures of digitalis which are not sold within 3 months from date of manufacture are sent to the laboratory to be retested in order to determine whether or not the preparation has deteriorated. If it is still of standard activity it is given a new date of test. If deterioration is shown, however, it is taken from stock, fortified and restandardized.

The results of these tests are very interesting and show that the rate of deterioration of tincture of digitalis varies greatly with different lots. While the great majority of samples deteriorate, and some deteriorate very rapidly, there are quite a few samples which apparently do not deteriorate at all.

¹ Houghton and Hamilton, *Am. Jour. of Pharmacy*, Oct. 1909.

I have also noticed that in many cases preparations deteriorate rather rapidly during the first three months and then remain practically permanent thereafter.

The accompanying table shows some of the data on the deterioration of Tincture of Digitalis that we have obtained by the above method of routine testing.

DATA SHOWING DETERIORATION OF TINCTURE OF DIGITALIS.

| 1st Test. | Date. | 2nd Test. | Date. | 3rd Test. | Date. | 4th Test. | Date. | No. of months between first and last test | Deterioration. | Aver. Deter. per Mo. Dur- ing 1st 3 or 4 Months. | Av. Deter. per Month After 1st 3 or 4 Months. |
|-----------|-------|-----------|-------|-----------|-------|-----------|-------|-------------------------------------------------|----------------|-----------------------------------------------------------|--------------------------------------------------------|
| 100% | 9/11 | 85% | 1/12 | 85% | 6/12 | 85% | 9/12 | 12 | 15% | 3.7% | 0 |
| 132% | 9/11 | 127% | 1/12 | 127% | 6/12 | 127% | 9/12 | 12 | 3% | 0.7% | 0 |
| 144% | 9/11 | 125% | 1/12 | 110% | 6/12 | 110% | 9/12 | 12 | 23% | 3.2% | 1.3% |
| 133% | 9/11 | 126% | 1/12 | 115% | 6/12 | 115% | 9/12 | 12 | 1.3% | 1.3% | 0 |
| 125% | 9/11 | 110% | 1/12 | 110% | 6/12 | 110% | 9/12 | 12 | 12% | 3.0% | 0 |
| 100% | 9/11 | 80% | 1/12 | 75% | 6/12 | 75% | 9/12 | 12 | 25% | 5.0% | 6.6% |
| 145% | 9/11 | 145% | 1/12 | 135% | 6/12 | 135% | 9/12 | 12 | 6.9% | 0 | 0.8% |
| 200% | 9/11 | 153% | 1/12 | 153% | 6/12 | 153% | 6/12 | 12 | 23% | 5.7% | 0 |
| 127% | 11/11 | 80% | 2/12 | 80% | 6/12 | | | 8 | 37.9% | 12% | 0 |
| 100% | 5/11 | 74% | 6/12 | | | | | 13 | 26% | X | 2.3% |
| 130% | 5/12 | 100% | 8/12 | 71% | 11/12 | | | 6 | 45% | 7.9% | 9.6% |
| 100% | 6/12 | 80% | 9/12 | 75% | 1/13 | 70% | 4/13 | 10 | 30% | 6.6% | 1.4% |
| 91% | 1/13 | 65% | 5/13 | | | | | 4 | 28% | 7.0% | X |
| 90% | 3/13 | 62% | 6/13 | | | | | 3 | 31% | 10% | X |
| 100% | 11/12 | 83% | 7/13 | | | | | 8 | 17% | 4.2% | X |
| 111% | 3/13 | 111% | 7/13 | | | | | 4 | 0 | 0 | X |
| 133% | 11/12 | 133% | 12/12 | 80% | 7/13 | 71% | 12/13 | 13 | 45% | 0 | 3.7% |
| 100% | 10/12 | 100% | 7/13 | | | | | 9 | 0 | X | 0 |
| 133% | 12/12 | 71% | 12/13 | | | | | 12 | 46% | X | 3.8% |
| 100% | 11/12 | 67% | 12/13 | | | | | 13 | 33% | X | 2.5% |
| 142% | 11/12 | 125% | 2/13 | 120% | 5/13 | 115% | 8-13 | 9 | 19% | 3.6% | 1.3% |
| 111% | 3/13 | 111% | 7/13 | 111% | 12/13 | | | 9 | 0 | 0 | 0 |
| 133% | 10/13 | 100% | 1/14 | | | | | 3 | 25% | 8% | X |
| 115% | 9/13 | 83% | 1/14 | | | | | 4 | 27% | 7% | X |
| 100% | 8/13 | 100% | 1/14 | | | | | 5 | 0 | 0 | 0 |
| 100% | 1/14 | 83% | 4/14 | | | | | 3 | 17% | 5.6% | X |
| 100% | 2/14 | 85% | 5/14 | 75% | 8/14 | | | 6 | 25% | 5% | 3.3% |
| 83% | 2/14 | 83% | 5/14 | 83% | 8/14 | | | 6 | 0 | 0 | 0 |
| 144% | 2/14 | 120% | 5/14 | 110% | 8/14 | 110% | 11/14 | 9 | 23% | 5.3 | 1.5% |
| 83% | 10/14 | 77% | 1/15 | | | | | 3 | 7.2% | 2.4% | X |
| 108% | 9/14 | 85% | 1/15 | 62% | 3/15 | | | 5 | 42% | 7% | 13% |
| 108% | 2/15 | 100% | 5/15 | | | | | 3 | 7.4% | 2.4% | X |
| 110% | 3/16 | 90% | 9/16 | | | | | 6 | 18% | X | 3% |
| 118% | 7/16 | 91% | 11/16 | | | | | 4 | 22% | 5.5% | X |
| 125% | 12/16 | 110% | 3/17 | 100% | 6/17 | | | 6 | 20% | 4% | 3% |
| 125% | 12/16 | 111% | 7/17 | 100% | 9/17 | | | 9 | 20% | 1.7% | 4.5% |
| 100% | 7/17 | 100% | 9/17 | 100% | 11/17 | 100% | 1/18 | 6 | 0 | 0 | 0 |
| 135% | 6/16 | 135% | 9/16 | | | | | 3 | 0 | 0 | X |
| 125% | 7/17 | 110% | 2/18 | 110% | 5/18 | | | 10 | 20% | 1.7% | 0 |
| 125% | 11/17 | 110% | 2/18 | 110% | 5/18 | | | 6 | 20% | 4% | 0 |
| 166% | 10/17 | 166% | 12/17 | | | | | 2 | 0 | 0 | 0 |
| 125% | 11/17 | 110% | 2/18 | 100% | 5/18 | | | 6 | 20% | 4% | 3% |
| 110% | 12/17 | 100% | 3/18 | 85% | 6/18 | | | 6 | 22% | 3% | 5% |

The tabulated results show the average deterioration in 9 to 13 months of 43 samples to be 18.8 percent. The average deterioration of 38 samples during the first three or four months being 4 percent per month, while the average deterioration of 32 samples after the first three or four months was 2.4 percent per month.

PHARMACODYNAMIC LABORATORY,
H. K. MULFORD CO.,
July 28, 1918.

TABLETS FOR THE DISINFECTION OF DRINKING WATER.*

BY BERNARD FANTUS.¹

For the disinfection of small quantities of drinking water, such as those that might be gathered and carried by rapidly moving troops, tablets constitute by far the most satisfactory form for use. Hence the study of these becomes of special importance in war time. To be ideal, such tablets should be small, prompt and reliable in action, perfectly harmless, and leave the water free from offensive odor or taste, and finally be relatively inexpensive. This study was undertaken to determine the nearest approach to the ideal.

Chlorine, by far the most potent disinfectant, is at the same time the most harmless, as in exercising its disinfecting action, it is changed to chloride ions. While liquefied chlorine is the most satisfactory form in which to use this agent for water disinfection on the large scale—the city of Chicago for instance, adding to its drinking water from three to five pounds of liquefied chlorine per million gallons of water—it is, of course, out of the question for the purpose under consideration.

Lime, in the form of chlorinated lime, is probably the most convenient and cheapest vehicle for chlorine; and this is, no doubt, the reason why the health department of the city of Chicago took up, in 1916, the question of preparation of chlorinated lime tablets. I am indebted to Dr. D. O. Tonney, the Director of the Municipal Laboratories, for permission to publish the data obtained by Mr. Jay Kaplan in this inquiry.

TABLET TRITURATES OF CHLORINATED LIME.

"The tablets were prepared as follows: Chlorinated lime containing not less than thirty percent of available chlorine is moistened slightly in a mortar to make a thick paste. It is important to add the smallest amount of water which will give a suitable consistency to the mixture. Very often the market product is sufficiently moist without further treatment. A tablet triturate mold of vulcanite, having fifty perforations, 5 mm. in diameter and 3.5 mm. in depth is used. The perforated half of the mold is placed on a glass plate and the paste is pressed into the impressions with a spatula. The mold is then placed for from five to ten minutes in an oven at 40° to 50° C. The tablets are now carefully forced out by fitting the two parts of the mold together and applying slow pressure. The tablet triturates thus prepared are shaken into bottles and tightly stoppered. The tablets ordinarily weigh from 120 mg. to 140 mg., and contain from 30 to 40 mg., of available chlorine. For distribution they are put up in homeopathic vials, ten tablets to the vial. The vials are tightly stoppered and kept, if possible, in a dark, cool place. Under average conditions, the disinfectant retains its potency for

* Read before Scientific Section A Ph. A., Chicago meeting, 1918. From the John McCormick Institute for Infectious Diseases. Aided by a grant from the Fenger Memorial Fund.

¹ Associate Professor of Therapeutics, Rush Medical College of Chicago.

about four weeks. The tablets are given out each summer by the Department of Health for the benefit of vacationists and motor tourists.

Directions for use: Dissolve one tablet by crushing between the fingers in one quart of water in an ordinary mason jar, which should be sealed with an air-tight cap. The jar is then shaken and stored in a cool, dark place. This is the stock solution and under average conditions will last about one week, after which it should be renewed.

"To prepare water for drinking, take one teaspoonful of the stock solution to one 8-ounce glass of drinking water, allow it to stand for about five minutes, when it is ready for drinking and will be safe. If it is suspected that the water is heavily polluted, two teaspoonfuls of the stock solution should be used to each 8-ounce glass of water. If it is desired to make up a daily supply, ready for use, it can be done by adding four teaspoonfuls of the stock solution to each quart of water.

The following experimental notes were made by Mr. Jay Kaplan on the keeping qualities of these tablets:

On September 16, 1916, about two hundred chlorinated lime tablet triturates were made from a fresh can of chlorinated of lime and distilled water, to give the proper consistency, etc.

Filled about nineteen tubes containing ten tablets each and sealed by fusing the glass.

On September 18, 1916—analyzed one tube (sealed two days) by U. S. P. assay method: 4 tablets, weight 0.5706 Gm., required: 30.3 cc. N/10 $\text{Na}_2\text{S}_2\text{O}_3$ = 18.68% available chlorine.

Four months later, on January 15, 1917, another tube assayed 11.12% average, which represents a deterioration of about 40% Cl gas under pressure in tube. (Note: When opened tablets appeared to be moist and had lost their shape.)

Seven and one-half months later, on May 1, 1917, the contents of two tubes were assayed. Upon opening each tube under water, a loud report was heard and a distinct splash seen. No water was sucked into the tube. The gas was evidently under pressure. The tablets were moist and sticky, and did not retain their shape when removed from the tube.

Assay = 3.27% available chlorine in one tube

3.32% available chlorine in another tube

Average = 3.30% available chlorine, a deterioration of 82.5%.

We may therefore conclude that chlorinated lime tablets prepared by the tablet triturate process do not possess satisfactory keeping qualities.

COMPRESSED TABLETS OF CHLORINATED LIME.

On the assumption that the moisture employed in the preparation of the tablet triturates was responsible for the rapid deterioration of the tablets, just described, Mr. Eicher, of the School of Pharmacy of the University of Illinois, kindly prepared for me some tablets by means of compression, using the following formula:

Chlorinated lime, 30%, or proportionately

larger amounts of weaker lime 0.59 Gm.

Sodium Chloride (granular). 10.00 Gm.

Divide into 100 tablets weighing about 105 mg. each, avoiding use of lubricant.

One of these tablets will disinfect one l. of moderately infected water within one hour in cool, or much sooner in hot weather.

These tablets, prepared on May 3, 1918, without special care as to drying, and kept in the dark, in a well stoppered bottle, were assayed from time to time.

May 6, 1918 5 tablets weighing 0.538 Gm. yielded 9.2 mg. available Cl.

June 15, 1918 5 tablets weighing 0.544 Gm. yielded 8.1 mg. available Cl.

July 8, 1918 5 tablets weighing 0.529 Gm. yielded 7.1 mg. available Cl.

Aug. 9, 1918 5 tablets weighing 0.536 Gm. yielded 6.5 mg. available Cl.

This is equivalent to a deterioration of about 10 percent per month; though the rate of deterioration is becoming less. Had the tablets been prepared from dried material, the deterioration would, no doubt, have been slower. Nevertheless, it must be admitted that chlorinated lime tablets are decidedly unstable. However, by the time the deterioration has reached 50 percent, which might be in the course of half a year, these tablets would still be as good as ever for disinfecting half the specified quantity of water.

COMPRESSED TABLETS OF HALAZONE.

Because of this instability of chlorinated lime tablets, H. D. Dakin and E. K. Dunham¹ advocated, for the purpose under discussion, *p*-sulphondichloramino-benzoic acid ($\text{Cl}_2\text{NO}_2\text{SC}_6\text{H}_4\text{COOH}$), and proposed the name "Halazone" for it. This substance is prepared from a cheap waste product in the manufacture of saccharin, which latter is ortho-sulphamino-benzoic acid. The para-isomer, which is not sweet, when chlorinated, constitutes halazone. This substance, very sparingly soluble in water, has its solubility increased by alkalies, such as sodium carbonate or borax. Dakin and Dunham found that 1 : 300,000 sterilizes water in about 30 minutes, leaving the water fairly palatable. They propose the following formula for tablets:

| | |
|-------------------------------|----------|
| Halazone..... | 4.0 Gm. |
| Sodium Carbonate (dried)..... | 4.0 Gm. |
| Sodium Chloride | 92.0 Gm. |

The material should be carefully dried and mixed, the alkali being added last, and made into 100 mg. tablets, without use of lubricant.

One such tablet is capable of disinfecting one l. of water in 30 to 60 minutes.

The authors referred to report² that they found such tablets kept in amber-colored bottles at ordinary temperatures almost unchanged for five months, and that they should be serviceable for considerably more than a year. Having fed this substance to rabbits in doses of 100 to 200 mg. per day without observable symptoms, they consider it perfectly innocuous in the small amounts required for sterilization of water.

I have verified the claims of Dakin and Dunham in practically every respect. Have fed halazone to kittens and to rabbits in doses of 100 mg. per day for over 4 months without observable deleterious effect, either during life or on necropsy. This dose would approximate 7 Gm. daily for a man, and only 4 mg. are required to disinfect one l. of water.

Halazone tablets (which as well as the halazone used in my other experiments were kindly furnished me by The Abbott Laboratories of Chicago) showed the following results on assay from time to time.

Bottle opened May 6, 1918.

May 6, 5 tablets, weighing 0.550, yield 10.6 mg. available Cl.

July 8, 5 tablets, weighing 0.561, yield 10.6 mg. available Cl.

Aug. 9, 5 tablets, weighing 0.573, yield 10.6 mg. available Cl.

Therefore, there has been practically no deterioration in four months.

¹ *Brit. Med. Jour.*, Jan. 29, 1916, also May 26, 1917, p. 682.

² *Ibid.*, Dec. 15, 1917, p. 790.

The only disadvantage that halazone presents is its comparatively slow action. Using equivalent strengths of chlorinated lime and of halazone, (calculated on the basis of "active chlorine"), I found that halazone required almost twice as long as chlorinated lime for disinfection. This is in accordance with what might have been anticipated, in view of the fact that chlorine is the active agent in both, and that it is more readily given off from chlorinated lime than from halazone. The greater instability gives chlorinated lime a greater rapidity of action. However, even with chlorinated lime in the concentrations recommended, it may take 30 minutes to obtain complete disinfection. Now 30 minutes may seem quite a long time to a thirsty man.

COMBINATION WITH CITRIC ACID.

Some studies were therefore undertaken to find out whether it is possible to accelerate the action; and I succeeded in finding such an agent in citric or other organic acid. Citric acid enables a concentration of chlorinated lime or halazone to act within one to five minutes when, without the acid thirty or more minutes would have been required. As little as $\frac{1}{20}$ percent of citric acid enables chlorinated lime, $\frac{1}{20,000}$ N, to disinfect in less than five minutes; an equivalent amount of halazone, to act within ten minutes.

Another advantage of the action of citric acid in chlorine disinfection is improvement of the taste of the water thus disinfected. Nearly all of us are only too familiar with the disagreeable taste of chlorinated water. The addition of citric acid, even in very small amounts, improves the taste in two ways: it tends to disengage the chlorine from the compounds it has entered in with the constituents of the water, and it substitutes a pleasant degree of sourness for the flatness and offensiveness of taste of the chlorinated water. In this connection, I might point out that citric acid greatly improves the taste of Chicago water, which is not only chlorinated but which, at times, somehow becomes contaminated with the flavor of rotten fish. When used for this purpose, a little of a citric acid solution, say 5 or 10 percent, may be mixed with the water; the amount used being entirely governed by the taste.

Inasmuch as citric acid acts by driving off chlorine, it is obviously difficult to incorporate it in a tablet, at least one made in the ordinary way. In an experimental lot of citric acid-chlorinated lime tablets, made with fairly well dried material, all chlorine had practically disappeared within twenty-four hours. When, therefore, citric acid is used to accelerate the disinfectant action of chlorinated lime, or of halazone and to improve the taste of the product, it might be necessary to make use of a two-tablet system, unless some other acid and special method of preparation, which absolutely excludes moisture, make it possible to incorporate the two in one tablet. Here is a field for further research.

CONCLUSIONS.

1. Halazone is the best material at present available for the preparation of water disinfecting tablets.
2. Compressed tablets of chlorinated lime are less stable; though not so unstable as to be useless.
3. The tablet triturate process is not suitable for the preparation of chlorinated lime tablets.

4. Citric acid, even in very small amounts, renders the action of these tablets much more rapid and the disinfected water much more palatable; but seems unsuitable for incorporation in one tablet with the chlorine disinfectant.

DISCUSSION.

CHAIRMAN EDWARD KREMERS stated that the two-tablet idea in disinfection reminded him of an object of historical interest in the Historical Drug Store of the Wisconsin Historical Society, namely, a large container of tablets containing manganese dioxide and sodium chloride. When chlorine was to be generated, sulphuric acid was added to some of these tablets. The label on the container bears the name of Dr. E. R. Squibb, who devised this method, and was employed for the War needs of that period (about 1860).

F. E. STEWART: What microorganism was used in testing out the disinfecting power of these tablets?

BERNARD FANTUS: Typhoid organisms. We carried out the experiments not only in distilled water infected with typhoid organism, but also in tap water. The details of this part of the work will be published in the *Journal for Infectious Diseases*.

EDWARD S. THATCHER: May I ask Doctor Fantus whether he confined his attention to typhoid bacilli?

BERNARD FANTUS: When tap water was used there were other bacteria present. Hence, when the tap water was sterilized, a number of other organisms had also been destroyed.

L. F. KEBLER: As the important thing is to make the drinking water safe, it is necessary to avoid the use of too much of the disinfectants. I presume the taste would be the final deciding factor, but I have been wondering what would be the effect of too much of the disinfectants. An experience with too much copper sulphate for a like purpose came under my observation. This is a matter of importance.

H. C. HAMILTON: In my experience, I have found that it was more difficult to disinfect tap water than distilled water. The presence of chemicals cuts down the effect of the disinfectant.

Referring to the remarks of the last speaker, copper sulphate is effective for treating water containing vegetable growths, but not so efficient for killing bacteria.

BERNARD FANTUS: In the sterilization of tap water I found much greater variations than in the disinfection of infected distilled water. Some days it was more difficult to sterilize tap water than distilled water, on other days the reverse was true. This was due to the variations in the Chicago water supply.

F. E. STEWART: It is highly essential to ascertain how many bacteria are present in water, and whether a bacterial count was made to determine the number of the bacteria present in the drinking water.

BERNARD FANTUS: In the water disinfected in my experiments there were 30,000 to 90,000 bacteria per mil.

THE EVOLUTION OF CHEMICAL SYMBOLS.

BY INGO W. D. HACKH.

Evolution is progress, progress is the transition from the incomplete to the complete, an increase in value, either spiritual or material. The evolution of scientific knowledge illustrates best "how human knowledge grows" and progresses. To a student of any science its historical development will be of great benefit in understanding the ideas and conceptions involved. The development of chemical symbols, for example, offers a miniature history of chemistry and is an interesting topic in more than one respect.

In the dark epoch of the middle ages as the alchemists attempted to gain wealth and eternal life by the search for the philosopher's stone, man's position to the material world was entirely different. At that time man was still laboring

under the conception that by some secret formula he could change the natural laws governing the material world. He thought to impress his belief what "should be" upon matter and thus worked out an elaborate system of a philosophy of nature, intermingled and permeated with mystic and superstitious ideas. In all alchemistic writing one comes constantly across this intermingling of spiritual ideas and material conceptions. The symbols used to designate certain substances were allegoric and symbolic of spiritual ideas, like love and hate, male and female, light and darkness, etc. The masculine and feminine principles were imparted to the substance itself. Matter became animated and possessed life. There are many evidences that the experiments were conducted as a kind of sacred rite, accompanied by prayers and chastisements. It has been shown, *e. g.*, that the common abbreviation for *recipe*, R, was originally the sign for Jupiter, the supreme deity of the Romans, for before mixing the ingredients, it was necessary to pray first for the successful conclusion of the manipulation. Even the very name, "crucible," for the common laboratory utensil, indicates the fact that before the alchemists applied heat to their mixtures in their earthen vessels, they made the sign of the cross—Latin *crux* (gen. *crucis*) and prayed for success. Very often explosions and breakage occurred, and of the casualties we have no record. No wonder that the alchemists were held in fear, for they conducted strange operations with flames and noises, prayers and death.

To the mind of the alchemist, matter was thus animated, and according to the properties of matter, these were either masculine or feminine. Upon these conceptions the strange and mystic theories were constructed and embodied in symbols. The symbols differ greatly for one and the same substance, and the tracing is therefore extremely difficult. An old volume of 1783, which is said to be based upon a work of 1549 and a manuscript of 1300, gives a great number of these symbols, some of which are represented in Fig. 1. One can see the great diversity, which makes the tracing of the origin of these symbols very difficult.

The search for the philosopher's stone, or alkahest, was at its height during the fifteenth century, and as pointed out above, attained the dignity of a religion. In fact, many reputable bishops and fathers of the Roman Church were professed alchemists. This intimate association of alchemy with religion, of mysticism and theosophy, of chemical operations and rules for the conduct of life, is clearly shown by the writings of Raymond Lully (1235–1315), Albertus Magnus (1193–1282), Arnoldus Villanovus (1240–1313), Basil Valentine and others. Naturally their quest remained unsuccessful.

A new direction of thought was initiated by the founder of Iatro-Chemistry, Phillipus Aureolus Theophrastus Paracelsus Bombastus *von* Hohenheim, who lived from 1493 to 1541 and whose eventful life is most interesting and adventurous one. One writer says of him "he lived like a pig, looked like a drover, found his greatest enjoyment in the company of the most dissolute and lowest rabble, and throughout his glorious life was generally drunk;" another writer, however, describes him as "a man of noble character and intentions, a Christian humanist and ambulatory theosophist, who hoped to inspire mankind with a love of conscientiousness and veracity, and to restore the suffering to health."¹

¹ Hendrick, "Everyman's Chemistry," 1917, p. 195.



FIG. 1.—Alchemistic Symbols of the 15th and 16th Centuries.

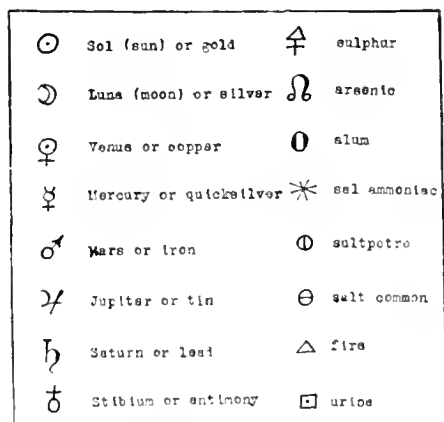


FIG. 2.—Alchemical Symbols of the 17th Century.

True it is that he violently attacked the physicians, adhering to the old traditional treatments, and the alchemists, who searched for the transmutation of metals. His doctrine was that the knowledge of alchemy should be applied to the healing of diseases. To this end he established his allegorical and pantheistic philosophy of harmonies, which centered around Soul-Mercury-Water-Nymphs, Spirit-Sulphur-Air Sylphs, and Body-Salt-Earth-Pigmies. As a physician he worked with various results, the fatalities were ignored and his successful treatments exploited by his followers. Slowly chemical knowledge was diverted to medicine and pharmacy.

In Fig. 2 the symbols of the Pharmacopoeia Batanea (1694), by William Salmon, a quack of the 17th Century, are reproduced. These symbols already show an emancipation from mystical allegories, for although the astronomical signs are preserved,

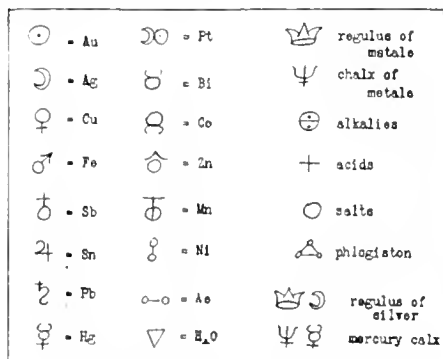


FIG. 3.—Symbols of Torbern Olof Bergmann (1735-1784).

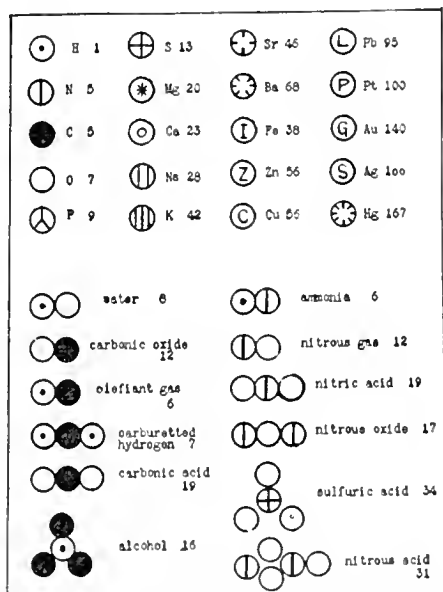


FIG. 4.—Symbols of Dalton (1766-1844) showing the old "relative weights" and terminology.

the symbols now denote the metals and substances and are used as abbreviations for them. e. g., antimony is mentioned as stibium, and not as "earth."

Further development is seen in the symbols of Bergmann, Fig. 3, who published in 1783 his "*Opuscula physica et chimica*." These symbols form a part of a very elaborate system by which chemical knowledge of that day was represented. They were in use at the time of the founding of modern chemistry, for Lavoisier and Berthellot used these and similar signs.

The chemical experience of mankind had now attained such a state when the atomic theory was in the air, for already Bergmann had observed the replacement of metals in solution, and Lavoisier tried to explain this by affinity. Richter and Fischer worked on acids and bases, on neutralization, and introduced the term stoichiometry, but it was for Dalton to lay the foundation of the atomic theory.

Dalton's symbols (see Fig. 4) appeared in 1808 in his "New System of Chemical Philosophy," and were the result of his studies on the composition of marsh-gas and ethylene and the oxides of nitrogen. Thus the cornerstone of modern chemistry was laid upon the fundament established by Lavoisier.

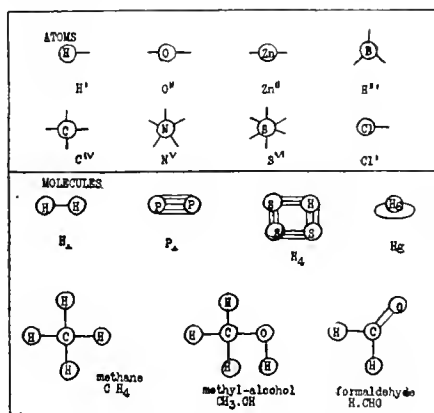


FIG. 5.—Graphic Notation of Kekule, Naquet, Frankland and others.

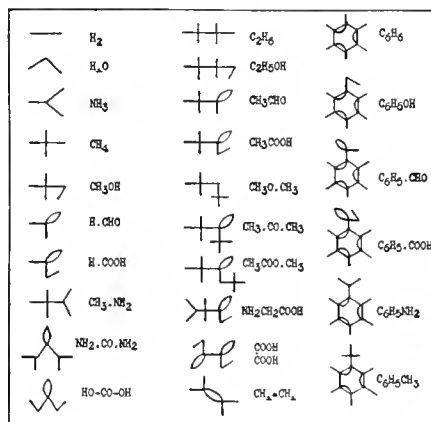


FIG. 6.—Some Simple Structure Symbols of Organic Compounds.

In 1814 Jöns Jakob Berzelius replaced the geometrical signs of Dalton by the initial letter or letters of the elements, and thus introduced the customary symbols of to-day. Chemistry advanced rapidly, and the work of Kekule, Liebig, Woehler, Dumas, Naquet and Frankland developed the graphic notation of Fig. 5 which developed into the structure formula. But before the chemical symbols became established as denoting a single atom and a definite atomic weight, they had to undergo during the period of establishing, the correct proportion of oxygen and hydrogen in water, the confusing use of the "barred notation," that is, in chemical formulas the old equivalents were designated by symbols, the new atomic weights by the symbols with a bar through them. This notation makes the reading of the literature of this time complicated and confusing.

A modern development of chemical symbols are the structure-symbols for organic compounds.¹ These structure-symbols are based upon the fact that the majority of organic compounds contain the elements hydrogen, oxygen, nitrogen and carbon. The respective valencies of these elements are one, two, three (or

¹ A Chemical shorthand, *Can. Chem. J.* 2, p. 135, 1918. Organic Symbols, *Science*, 48, p. 333, 1918.

five) and four, and differ therefore for each element. Upon this fact is based the system of structure symbols, and in Fig. 6 some of these symbols are given. It is evident that with this simple principle to each organic compound, a definite and different symbol can be given, for the atoms of the respective elements are thought to be points, and the points are determined by lines, thus where a line begins or ends an hydrogen atom is supposed to stand; where the line makes an angle or two lines come together, oxygen stands; where three lines meet or radiate, nitrogen exists, and at the point where two lines cross or four lines come together, an atom of carbon is thought to exist. While these symbols at first might seem to be complex, they make in reality the study of organic chemistry much simpler, for a little practice in deciphering and constructing these "valence-structures" will enable the student to form clearer images of the structure of a compound. They are the structure-skeletons; for any structure formula can then be taken, each atom has to be written down by its symbol, and the symbols connected by the bonds, and then all the symbols are erased and the bonds left standing will yield the "structure-symbol."

The elements H, O, N, and C, have been called bio-elements, for they constitute over 99 percent of all living matter, less than 1 percent is filled up by other elements. Similarly the elements which constitute the rocks and stones are mainly the oxides of Na, Mg, Al and Si, forming, as silicates, the larger part of the known earth crust, although of their structure we know little, for their composition is complex and defies the ordinary methods of structure-analysis. Nevertheless, the new researches on crystal structure, with the help of X-rays, will, perhaps in the future, throw more light upon the chemistry of the silicates, and if the structures should become better known and established, the same method of representation can be employed. Like in the structure symbols of organic compounds the valencies are made the basis in the system, so could also the valencies of Na -1 , Mg -2 , Al -3 and Si -4 be employed to form the basis of structure symbols for the rock-forming silicates, distinguishing them from the bio-elements, *e. g.*, by a circle.

The evolution of the chemical symbols is an interesting chapter of chemistry and illustrates the attempts of human mind to represent its conception of facts in a concise way, from the allegorical symbols of the alchemist, to the structure-symbols of to-day, which illustrate our present conception of organic structures.

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PROBLEMS OF THE MANUFACTURER OF MEDICINAL CHEMICALS DIRECTLY RESULTING FROM WAR CONDITIONS.*

BY B. L. MURRAY.

It may safely be said that all manufacturing enterprises in the United States have encountered problems directly resulting from war conditions. It is not possible that one industry, or indeed one individual, has remained isolated and unaffected by the war now four years old. We may not perceive in our casual observance of an industry, in just what manner war conditions have had their

* Read before Scientific Section A. Ph. A., Chicago meeting, 1918.

effect, but it is unthinkable that any can remain undisturbed when all the great nations of the world, and many of the lesser, are engaged in the most stupendous war of all time.

The steel industry, for example, has its problems. You have read of them. The largest and most highly organized steel industry in the world is at this minute straining every nerve to produce enough to meet war's demands. And it will meet them. The textile industry, highly organized for years, is to-day turning out quantities of its products hitherto unheard of, especially for the forces of ourselves and allies. And the textile industry will meet the situation as presented to it. The farming industry—probably the greatest in the world—has combed the country and the city in its search for workers, both men and women, to sow more acres and harvest more bushels than ever before in the history of farming. And it is harvesting those bushels this day. The ship-building industry—need anything at all be said of this industry? You are familiar with it. Every paper rings with its acclaim. In April 1917, no shipbuilding industry of note; to-day our ships seek the waters literally in fleets! Before hostilities broke out with our own country, we built almost no ships. Our commerce, broadly speaking, was done in ships of other nations. Great Britain, one of our most powerful allies, carried much of our shipping. Some was carried by our other allies, and a portion by Germany. Great inconvenience to our business world occurred when the German shipping was suddenly stopped. But we had the help of Great Britain and others to fill the gap. Thus shipbuilding and shipping had good support. And when we entered the war in 1917 our shipbuilding industry was promptly created by government capital. Our ships are launched in fleets! Only 24 days from the laying of the keel to the launching!

The chemical industry do you ask? No less wonderful than the shipbuilding! Relatively small foundation to build on, but has grown to gigantic proportions. The chemical industry is making good! It is not top-heavy. Not going to crumble soon. Held down by sober business men. Held up by American chemists, the best in the world to-day. Upheld, as are all our industries, by the *civilized* peoples of the world. You know what the American chemical industry is to-day. You can not fail to hear about it. We have chemicals to spare—and we are exporting them to those who want them. The chemical industry does not intend to quit when the war is over. Plans are not laid with that in view. Our new and highly developed chemical industry will stick, and no man or group of men will be able to pry it out of its honestly won position.

The chemical industry and the shipbuilding industry may be considered as in somewhat the same positions although there are differences. When war first confronted the world as an actuality in 1914, the United States, Great Britain, France, Italy, Japan, Russia, in fact the world itself, depended almost entirely on Germany for its chemicals. This is true of chemicals in general, but particularly true of medicinal chemicals, in which you are especially interested. The United States depended almost entirely on Germany for the medicinal chemicals! And Germany became an enemy country! American chemical manufacturers rose at once to the occasion. Factories sprung up like weeds, and others greatly expanded. Chemists became sought after, and soon, to the astonishment and satisfaction of all, we were producing in quantities previously undreamed of. The government

did not do this. Government aid has been more recent and mostly in munitions. Individual enterprise produced our great chemical industry.

It is indeed a great privilege to stand to-day so entirely independent. America is proud of her accomplished works, even though impelled to the performance of them by the greatest war of history. And the chemical industry is proud to stand side by side with the shipbuilding industry as one of the new and most remarkable results of the war.

One of the first problems with which manufacturers were confronted was shortage or lack of raw materials. Supplies of raw materials that had given no particular trouble in the past were suddenly shut off. For example, in peace times opium came mostly from Turkey. Its list price was about \$4.50 per pound and manufacturers were familiar with its behavior in their laboratory processes. But Turkish opium suddenly became unobtainable and prices rose to \$20.00 or even \$30.00 per pound. Persian opium came into the market. It is somewhat different in its nature, so that processes of manufacture of opium preparations had to be revised. One interesting feature of this example is that from Persian opium plenty of codeine is obtainable, whereas less is yielded by Turkish.

Coca leaves came mostly from Java. Supplies became obtainable with difficulty because shipping was so limited. South American leaves again came into the market, necessitating in turn changes in the processes of manufacture of preparations from coca leaves, since the leaves from various sources are different in their make-up.

Cinchona affords another example of difficulties encountered with raw material. The Dutch owners of the East Indies, the principal source of cinchona, have placed its sale on a restricted basis by means of licenses. It was difficult and expensive enough to obtain supplies heretofore, owing in part to limitations of shipping, but it is more so now.

Pharmacy, happily, consumes relatively small amounts of potash, but has, nevertheless, suffered to a considerable extent from shortage of potassium salts. All potash came from Germany in the past, but many new sources have now been found. They are, as yet, too limited in their output to meet our national requirements fully, although the demands of pharmacy and medicines are being met reasonably well now. Because Germany had potash to sell she told us to use it. And because she told us to use it we did so. Its use was not really so necessary in pharmacy and medicine as we allowed ourselves to think. Physicians now tell us that in general the corresponding sodium salts are just as useful therapeutically, in fact in many cases are preferable. Of course they are cheaper, and for the two reasons, usefulness and cost, sodium salts should be employed wherever they can be. But we should also use them because by so doing we release an equivalent amount of potash for war purposes.

Manufacturers that were successful in obtaining their raw materials, even though with great effort, were even then by no means in smooth waters. Apparatus is constantly needed both for renewals of the present equipment and for manufacture of new articles. We were surprised to have the war bring to our attention the fact that much of the apparatus used in chemical manufacturing came from enemy countries. This was especially the case with glassware, porcelain ware and stoneware, but to a great extent also with enameled iron and other wares,

particularly acid-resisting wares. You will readily see what a great demand and burden was suddenly thrown upon our makers of glassware, porcelain ware, and stoneware. Many new and very extensive, as well as most urgent, demands were made upon them. And our foundry men too, producing the great pans, kettles, vacuum dryers and such, encountered orders for supplies entirely beyond their ability to supply promptly.

No doubt the experience of Merck & Co. in getting apparatus for renewals and for new work was similar to that of other manufacturers. It was simply necessary to wait for many of the pieces required. Thus plans for making new products were formed, methods of manufacture worked out, buildings erected, raw materials provided, outlets for the finished goods arranged, and all were then held up for an indefinite period while waiting in line for turn at the factory of the apparatus maker. These almost interminable waits for apparatus were exasperating, to say the least. It is very much like being all dressed up and nowhere to go. Weeks elapsed, then months. An important piece of machinery ordered in November not yet obtainable in August!

But there were good and sufficient reasons for all this waiting. New industries, those of the apparatus makers, were being born or recreated in the United States. They are now with us strong and sturdy. Long may they live!

Given the raw materials and apparatus, men and women, skilled and unskilled, are required. The labor question arises. Long before our country entered the war there was such a demand for labor that employers were alarmed. The allies were making such great demands on us for food, munitions, clothing and supplies in general that our laborers were in unusual demand. It was difficult to find a man to stick to any task for more than a brief period of time. There was much shifting about from one employer to another, thus creating great uncertainty in factory production.

With the calling of the United States Army the difficulties, of course, greatly intensified. Factories sent their best men with willingness and eagerness to the army and navy, displaying with proper pride the service flag of our country. But the problem of renewing the forces of chemical labor had none the less to be met. The problem has been met, and is being met daily, but it is one of the real problems of chemical manufacturers. Chemists, engineers, mechanics and skilled help in general were properly included in the draft. Many volunteered, others were drafted, so that from day to day the manufacturer's personnel was apt to change. So much uncertainty arose as a result of this that production was seriously threatened. Finally, however, the government came to our assistance. To-day unskilled labor is employed through government agencies; and chemists for important work in essential industries are returned from the ranks of the army to the ranks of the industries.

Chemicals, even medicinal chemicals, produced from suitable raw materials, in proper apparatus, by conscientious labor, are of small value unless containers in which to sell them are available. And the problem of containers has been a trying one. Bottles are very difficult to obtain and supplies must be arranged for well in advance, even several months in advance of requirements. Tin cans became very uncertain, because the war's requirements on tin must of necessity be met before any other. Cartons, carboys, barrels, boxes, and in general all

containers demand special consideration. And, in addition, much larger quantities of them are needed; to such an unusual extent have demands for the products of our own country increased.

How ship your products to your customers? Not by freight; not by express; for both these are greatly congested and positive embargoes abound. The mails are useful for small shipments, autos for short haul shipments only. It became necessary to employ a representative, who could be in Washington or elsewhere as needed, for the purpose of demonstrating to those in authority over questions of shipping, that medicines, and, especially medicinal chemicals, should have preferential treatment. The *sick* are waiting! Delays in shipping such material as medicines should not be allowed, much less required! Orders giving your products priority over other less essential shipments had to be earnestly sought. Such priority orders became obtainable but only after due effort. It developed into a real burden, however, when such special efforts were necessary in order to obtain each shipment of your raw material, your coal and your containers; and in addition to send out each shipment of your finished products. Lately this matter has been greatly cleared up and medical and surgical supplies, as well as the essentials for their production, are given proper priority. It has been a great relief.

Just at the moment when many of the troubles above related had, by dint of strenuous and concerted efforts, been overcome, or had at least been put in temporary abeyance, the telephone brought the startling news to Merck & Co. that "at five o'clock *to-day* the electricity for your motors and machinery will be shut off until further notice." It was the voice of the Public Service Corporation that spoke. Of course, they could not furnish current, because the ice was so thick that the coal barges could not get up the river to their power house. And besides there was no coal to come up the river. Priority orders for coal had failed to materialize for the Corporation that lights our houses and our streets, that propels our street cars and that turns our motors. Twenty minutes' notice to give up electricity! And our works running night and day!

I would not have you think that there is in all of this any tendency to find fault or to complain. Such is not the case. The situations as they arise singly and collectively in the American chemical industry are new, and they have to be met. They are being met! And met successfully! And it is in this success that we find pleasure in striving. And pride in our accomplishments. Let the government commandeer all the acetone in the country. We'll make our chloroform from something else. Let them send their questionnaires. Let them have our ammonia and our acetic acid, and anything they need. The chemical industry of America is working for and with the government, not in spite of it. They ask for a milligecans of ether to be ready in a few days! They want thirty-eight million pius! There is an urgent call for five hundred thousand bottles of carboic acid. All together with a will and the demands shall be cheerfully met. For does not every American here with red blood in him know that every such deed *accomplished* helps to defeat the hated enemies of our country in their desperate efforts to impose their ghastly Kultur on America, even as they have already imposed it upon Belgium!

PROBLEMS OF THE MANUFACTURING PHARMACIST DIRECTLY
RESULTING FROM WAR CONDITIONS.*

BY C. H. BRIGGS.

Manufacturing pharmacists, like all other manufacturers, have encountered some serious problems resulting from the War. Some of these problems have been solved but others are becoming more serious. The encouraging part of it all lies in the fact that we are facing these problems squarely and doing things now that we would have thought impossible before the war.

One of the most serious problems which confronts us at the present time is the shortage of chemists and pharmacists and the loss of our trained and skilled men. This is becoming very acute, and as the war goes on, it will become more and more serious. Skilled chemists and pharmacists are indispensable for the proper manufacture of pharmaceutical products. They are necessary for manufacturing, for assaying and control work, and for research. The Government has generously provided for exemptions for chemists to control products being made for the Army and Navy. But experience shows that even men so exempted frequently believe that they are not doing their full duty to the Government and later enlist for war work. This is particularly true with research chemists, and research work is necessarily much reduced at present.

In the past there have been a large number of chemists and pharmacists graduated every year from our many universities and colleges. This source has supplied our increasing demand for such men, but under present conditions comparatively few men are being graduated as chemists and pharmacists, and even these are wanted for war work as soon as they are ready. We are really facing a serious shortage in chemists and pharmacists and both men and women should be urged to take these courses and carry them to completion, as they will be greatly needed in the future.

A second problem that confronts us is the increase in the cost of the various products that we manufacture. I do not recall a single item that can be made for anywhere near the same cost it was made for before the war and many products cost several times as much. This is due of course to several causes:

1st. Increase in cost of crude drugs, chemicals and raw materials due to the scarcity of these products.

2nd. Increase in cost of labor.

3rd. War taxes, for these must necessarily be added on to the cost of manufactured products if the manufacturer wishes to continue in business.

If to the total of these costs is added a fair profit for the manufacturer and then the increased freight and express charges, is it any wonder that the druggist is surprised at the cost of his goods, or that the consumer thinks he is being robbed when the druggist has added on his cost and profit? But these are war times and we are coming to expect higher prices on everything we buy and we are never disappointed.

A third problem that has been acute ever since the war started is the shortage of certain drugs and chemicals. Drugs which are produced only in Germany, Austria and Turkey are now practically out of the market, while drugs which were

* Read before Scientific Section A. Ph. A., Chicago meeting, 1918.

produced in Russia, France and Italy are obtainable in limited quantities. In fact crude drugs from all foreign sources are scarce and high priced. Some crude drugs which are unobtainable from usual sources are being supplanted by similar drugs from other sources—as for example in place of Russian Ergot, Levant Scammony and Turkish Gum Opium, we are now able to obtain Spanish Ergot, Mexican Scammony and Persian Opium. Genuine Liquid Styrax is practically out of the market, but a similar gum from South America is quite plentiful and is being used with satisfactory results.

There is a real shortage of some of the rare alkaloids. Arecoline Hydrobromide, Physostigmine Salicylate and Scopolamine are unobtainable. Sparteine Sulphate and Pilocarpine are very scarce. Atropine is being produced in this country and is becoming more plentiful. Other alkaloids are all very high in price.

The shortage in pharmaceutical chemicals is improving steadily and thanks must be extended to American manufacturers for their earnest efforts to make these chemicals. At times important chemicals have been practically unobtainable, as for example—barium peroxide, benzoic acid, resorcin and cinnamic acid, but American chemical manufacturers are now making a good quality of these chemicals in sufficient quantities to supply the demand. Prices, however, are still high. Cinnamic acid, for example, was plentiful before the war at \$1.00 per lb. Not long ago it sold at nearly \$20.00 per lb., but can now be obtained at \$10.00 per pound.

Potassium salts have necessarily been scarce and much in demand ever since the war started, as Germany was the principal source of their supply. Limited quantities are now being produced in this country, but hardly sufficient to supply the demand. The U. S. P. IX has provided alternate formulas for certain preparations such as Bland's Pills, Compound Solution of Cresol, etc., so that sodium salts may be used where potassium salts were formerly employed. These formulas work satisfactorily and products so made give the same therapeutic results.

Another problem which is rapidly becoming very important is the conservation of glycerin, sugar and alcohol. In the past manufacturing pharmacists have used these items freely with only the thought in mind of producing the best and most stable pharmaceutical preparations possible. But with the increasing demand for glycerin for war purposes, the present shortage of sugar and the high cost of alcohol, manufacturers have been curtailing the use of these items wherever possible. In some products, where glycerin has been used freely, it has been entirely eliminated and replaced with the equivalent amounts of sugar. In others, where the glycerin was necessary for preservative purposes, some preservative has been added. Glycerin, alcohol and sugar are very important in most preparations for their preservative properties and for their action as solvents, and it would be false economy indeed for manufacturers to so restrict their use that the preparations would eventually ferment or spoil with a total loss of all the ingredients. There has been some consideration of placing government restrictions on the use of glycerin and sugar in pharmaceutical preparations, but such restrictions would be apt to lead to much greater losses in the spoiling of finished products, and it is to be hoped that such restrictions will not be imposed until they are found to be absolutely necessary. When we need drugs and medicines,

we want the best, and we can better afford to curtail on candy, sodas, etc., than on drugs and medicines.

In some of the U. S. P. preparations the use of glycerin could be readily eliminated, as, for example, Fluidextract Cascara Aromatic, which contains 20 percent of glycerin, and Syrup of Hypophosphites. The fluid glycerates might well be dispensed with until after the war, and fluidextracts used instead. Such changes would be of real value and help to reduce the consumption of glycerin materially.

As a final problem, I might mention the difficulties in transportation both in obtaining supplies and in shipping finished products. Delays of this kind are very annoying, both to the manufacturer and to the consumer, but we must expect such delays and so regulate our affairs as to produce as little inconvenience as possible.

In conclusion, then, we would ask for all the help you can give in increasing the number of graduates in chemistry and pharmacy, in regulating your selling prices to conform to the present cost of goods, in avoiding unwise restrictions on the use of sugar and glycerin and alcohol in pharmaceutical products which are liable to spoil, and in allowing for delays in transportation in ordering your supplies.

ANALYTICAL AND CHEMICAL RESEARCH DEPARTMENT,
PARKE, DAVIS & CO.,
DETROIT, MICH.
July 31, 1918.

THE CONSERVATION OF CRUDE DRUGS.*

BY HUGO H. SCHAEFER.

Much has been said and written of late regarding the conservation of glycerin, alcohol, syrup, etc., products which are used as solvents for drugs and their active principles, but practically nothing has been said about the conservation of the crude drugs themselves. To-day there is a shortage of very many botanicals, some are practically unobtainable, others are scarce, and all have increased more or less in price. These conditions are due partly to the shortage of help restricting the collection, partly to the enormous quantities bought by our and the allied governments, but largely because Europe is the habitat or source of supply of a great many of our official drugs. Much, of course, has been done to overcome this shortage by encouraging both the collection of native drugs as well as the cultivation of drugs which up to the present time were chiefly imported from Europe. Nevertheless, any means which might conserve the supply at hand ought to receive attention.

It has come to the author's attention that drugs often contain a much higher percentage of active constituents than the U. S. P. requires. Many official drugs will contain only slightly more than the requirements call for, but some may be obtained on the market which contain entirely too much active constituent. Jalap, for instance, has been found to contain as much as 15 percent resin instead of the 7 percent required, ipecac with 3 percent soluble alkaloids instead of

* Read before Section on Commercial Interests, A. Ph. A., Chicago meeting, 1918.

1.25 percent, cultivated belladonna, stramonium and hyoscyamus are often found to contain more than double the required percentage of alkaloids.

What happens when such drugs are dispensed? If the drug is assayed it will probably be sold per unit of active constituent for manufacturing purposes. But suppose the manufacturers cannot absorb all of this high quality drug or suppose it is sold to the retailer without assay, naturally the drug or its preparation, when dispensed, will be considerably over strength and the patient will receive an overdose of the drug. This overdose may or may not be harmful, but in either case the excess of drug is lost—is wasted. How much is wasted in this way is hard to estimate, but of 100 assays of various U. S. P. drugs made by the author during the last few months the average drug was found to be 23 percent higher in active constituent than is required, showing that 23 percent of these drugs would be wasted if dispensed by the druggist in any form without first being assayed and adjusted by some means.

How could this be overcome? The U. S. P. in its directions for making tinctures for which assays are given, directs that after an assay has been made the volume of the unfinished tincture should be so adjusted that the finished product will contain a certain quantity of active ingredient. In other words, if a druggist desires to make tincture of hyoscyamus he must purchase an assayed drug containing not less than 0.065 percent alkaloids and after the tincture has been made he must assay it and adjust it so that the finished tincture contains not less than 0.0055 Gm. and not more than 0.0075 Gm. alkaloids in 100 mils. How many pharmacists are in a position to do this? And yet if it is not done the preparation may be too strong, the patient may receive an overdose and the excess of drug may be wasted. Would it not be much better to adjust the strength of the powdered drug? Would it not be more practicable to allow the wholesale druggist or the crude drug merchant, after assaying a drug and finding it above strength, to adjust it by diluting it down with some inert material? Then all assayed drugs of the Pharmacopoeia would be uniform and the overdosage and waste would be eliminated. A pharmacist could buy such a standardized drug from a reputable house and after making his tincture carefully, would be sure that the percentage of active ingredient in the finished preparation would fall within the limits required by the U. S. P. Such tinctures would then truly represent a 10 percent preparation of a standardized drug and one mil of a fluidextract would correspond to 1 gramme of the drug and so with all other official preparations.

Of course, immediately the argument might be brought forth that if such dilution of powdered drugs were allowed, it would simply afford another means for the unscrupulous dealer to market inferior products, but upon further consideration it may be readily seen that diluting drugs with inert material is no different from mixing high grade drugs with low grade in order to obtain a product of exact U. S. P. strength and such mixing is no doubt done every day and is considered legitimate. Or again, it is no different from diluting a fluidextract made from a high grade drug with additional alcohol or menstruum to bring it down to the proper strength as the U. S. P. directs.

No doubt many firms have been in the habit of diluting powdered high grade drugs with extracted drugs or other material, but it is the object of the author in writing this paper to bring about a discussion which may help towards making

this, at present questionable procedure, legal. In the opinion of the author more uniform drugs and preparations could be obtained; overdosage could be prevented, large quantities of drugs could be conserved and incidentally money could be saved. The druggist could make his preparations without being required to assay them and to adjust them, if the diluting of assayed drugs with some inert material were officially sanctioned.

DISCUSSION.

C. O. EWING: This is a question upon which I cannot speak officially and my remarks must be so accepted. It is true, that there are some points in favor of such a procedure; one point mentioned was that it would enable the average pharmacists to make preparations which would not require standardization, if otherwise properly prepared. This might be so, if great care was invariably exercised, but we must admit that there are in the profession some people who cannot be made to be careful at all times, and I am of the opinion that there is no fool-proof method of securing an absolute uniformity of standardization. I think in the preparation of U. S. P. products of which standardization is required it should be done.

C. H. LAWALL: It seems to me that a solution of this problem, as to whether or not it is proper, may be found in the statement made in the Preface to the Pharmacopoeia, which is for the guidance of the manufacturer and the retail druggist who choose to take advantage of it, to the effect that when a product conforms in character to the standards of the products made by the official method, it may be made by any other method. The official procedure need not be followed provided the end products conform to the official requirements.

A. R. L. DOHME: I want to point out one thing that occurs to me in connection with this paper. Everybody who has percolated drugs to any extent knows that, given a drug of a certain alkaloidal percentage for percolation it is practically impossible to secure by any percolation method known an absolutely correct product containing all the contents of that drug. Standardized drugs have their undoubted advantages in many ways, but the uncertainty of a percolation securing all the alkaloid or active principle makes the preparations of them to that extent uncertain.

C. O. EWING: It occurs to me, regardless of how we prepare the finished product, the scientific way is to standardize that. The standards for crude drugs in the Pharmacopoeia are purposely much lower than we can ordinarily expect, because if they were placed too high a large quantity of the drugs would be of so low a standard that they could not be used. The scientific way is to standardize the end product.

J. P. SNYDER: I have read the statement that Professor LaWall refers to, but I think that has reference to the manufactured preparation and not to the crude material.

J. M. FRANCIS: I think the gentleman has overlooked one of the most important features connected with drug conservation. He perhaps refrained from referring to this phase of the matter purposely, but it seems to me that, under the present conditions, one of the most important things before this Association is using its influence in some measure for bringing about certain changes in the specific use of such drugs as belladonna, digitalis, and perhaps others. That digitalis leaves should be gathered from plants of the second year's growth was changed in the U. S. P. IX, and I think the former provision was needless and wholly unnecessary, provided the drug is properly handled and cured and stored. I have seen belladonna grown in the United States better than was ever imported from Europe. It assays in many instances three times the standard required by the Pharmacopoeia. The Pharmacopoeia specifies belladonna leaves containing not more than 20 percent of stems. I have seen belladonna stems with alkaloidal content far above the standard. Why then force the belladonna growers of this country, the drug buyers or the drug manufacturers, to discard such a large portion of this available plant? The same applies to other drugs.

C. H. LAWALL: I can see no reason why such stems should be discarded.

C. O. EWING: I understand there is some demand in the trade for belladonna stems at the present time; but I may say that, recently, belladonna stems have been released by the Department.

H. V. ARNY: I make a motion that this paper be brought to the attention of the U. S. P. Revision Committee.

J. M. FRANCIS: I am sorry the gentlemen have failed to get the drift of my remarks. It comes back to the matter of economy and conservation after all. The suggestion as to the use of the stems of belladonna is exactly in line with the idea of using corn for feeding chickens instead of feeding it to human beings. Valuable grain should not be used for stock food when it is needed for feeding people. The alkaloids are present in the belladonna stems and the stems should be used in the best possible way, and I maintain that the idea of conservation would require that they should be used in the same way as the leaves are. What I have said does not apply to the importation of the drug from abroad. I am talking about the conservation of the drug grown in this country.

C. O. EWING: I think the provisions of the Pharmacopoeia cover this question, if the end product is of standard strength.

CHAIRMAN R. P. FISCHER: I make this suggestion; that instead of referring the paper to the Revision Committee it be referred to the Committee on Conservation that is to be appointed. We have asked the Council to appoint a Conservation Committee, and through this Committee it will also reach the Revision Committee.

H. V. ARNY: Then I make the motion that Dr. Schaefer's paper be referred to the Committee on Conservation.

A. R. L. DOHME: The Committee on Standards of the American Drug Manufacturers' Association has made a definite recommendation to the Revision Committee that in the interests of the conservation of belladonna the official requirements of belladonna, instead of being confined to the leaves with a certain amount of stems, include the whole plant. This, I think, should apply to henbane and other drugs as well as belladonna.

C. O. EWING: Right now I am thinking of a drug that should be included—*ipecacuanha* and *ipecacuanha* stems. The U. S. P. VIII specifies that the stems can be of certain length—I don't recollect the exact figure—and the present Pharmacopoeia specifies 5 percent of stems. Within the past year quite a number of samples of *ipecacuanha* and *ipecacuanha* stems have been assayed in the Department, and in a number of instances we found that the stems contained more alkaloid than the root itself. It is waste not to use a valuable product.

A. R. L. DOHME: Nearly fifteen years ago I presented a paper before the Scientific Section of this Association in which I proved that the stems of *ipecacuanha* were richer in alkaloid than the root, and, at that time, I recommended to the Revision Committee the inclusion of the stems of *ipecacuanha* as well as the root. In that same paper I brought out the point that the *Carthagenia* *ipecacuanha* was even more rich in alkaloids than the *Rio*, which was the only one officially recognized, and the Revision Committee, in its wisdom, adopted the idea of making the *Carthagenia* official as well as the *Rio*. I contend that the stems should be made official as well as the root.

C. O. EWING: There is no question at all but that we have the finest pharmacopoeia extant, but there is still room for improvement. It needs some revision and it is needed now. I do not think that we should wait as long as we ordinarily do for the next revision.

C. H. LAWALL: We are working on the Supplement now, which we hope to have ready at the time of the next Convention. If any of you gentlemen have any specific recommendation please send them in to the Revision Committee as soon as possible.

The motion to refer the paper under discussion to the Conservation Committee was adopted, and also a motion by A. R. L. Dohme requesting the U. S. P. Revision Committee, if possible, to issue the Supplement, covering important items, during this year. Other subjects of conservation, not closely related to the paper, were presented; these will be reported in the minutes of the Section.—
EDITOR.

THE ADVANCE BY KILOMETERS.*

BY H. V. ARNY.

Recently a friend of the writer, requested to subscribe to a war-fund in the guise of "a mile of dimes," responded as follows:

While I heartily approve of your fund, I disapproved with equal heartiness of the way in which the money is raised. To an ardent metricist like myself the

* Read before Section on Commercial Interests, A. Ph. A., Chicago meeting, 1918.

securing of miles, yards and feet of dimes is objectionable. I find a dime measures 18 millimeters across and I therefore take pleasure in subscribing to 900 millimeters of dimes and enclose my check for \$5.00 covering this length.

The above problem affords a peculiarly pertinent comparison between metric and our Elizabethan Standards. The measuring of a dime with calipers shows its diameter as exactly 18 millimeters, or about $\frac{23}{32}$ of an inch. Neither figure is a convenient one for calculations and yet despite this handicap note how much simpler is the metric arithmetic than is the figuring by the old standard.

Mentally we can calculate:

| | |
|--------------|---------------|
| 18 mm. | = 10 cents |
| 90 mm. | = 50 cents |
| 900 mm. | = \$ 5.00 |
| 9 meters | = \$ 50.00 |
| 9 kilometers | = \$50,000.00 |

And one kilometer (or one-ninth) represents the repeating decimal \$5.555.55 $\frac{5}{9}$. Now for "the mile of dimes."

Mentally we may calculate:

$$\begin{aligned}\frac{23}{32} \text{ inch} &= 10 \text{ cents} \\ 23 \text{ inches} &= \$3.20 \\ 12 \text{ inches} &= \frac{12}{23} \times \$3.20\end{aligned}$$

and there our mental arithmetic stops and we have to turn to multiplication and to long division:

$$\begin{array}{r} 3.20 \\ 12 \\ \hline 23)3840(1.67 \\ 23 \\ \hline 154 \\ 138 \\ \hline 160 \\ 161 \\ \hline \end{array}$$

to find that one foot of silver dimes equals \$1.67 which the promoters of the scheme call \$1.70 to 17 dimes. Having gotten one foot, let us take paper and pencil and calculate the mile of dimes. An easy job for a summer siesta; merely multiplying \$1.67 by 5280:

$$\begin{array}{r} 5280 \\ \$1.67 \\ \hline 36960 \\ 31680 \\ 5280 \\ \hline \$8817.60 \end{array}$$

Thus, through much tribulation, we arrive at the fact that an English mile of American dimes will total \$8,817.60.

As I understand the request of the chairman of this Section, his desire was a paper on how the metric system was capable of winning the war. In one sense the war is being won by the metric system, for thank God! the news now coming to us shows that our brave boys and the boys of our allies are winning the war, kilometer by kilometer. To this it might be added that the winning of the war by the allies would have been an easier task had all of us, English and Americans, as well as French, Belgians and Italians, spoken the universal language of weights and measures, the metric system. This is shown by the request of the French authorities just after we entered the war that we pitch in and manufacture the 75 millimeter gun rather than continue with the regulation United States gun of somewhat similar calibre.

But my intention is not so much to discuss what the metric system is doing to win the war for us Americans, as what the war will do toward making this a metric country.

There is not one of our group of ardent metricists who is advising the arbitrary changing of standard in this period of storm and stress. That the operations in France will bring about a trend toward metric units, especially in the machinery trade, is apparent, as for instance the adoption of the 75 millimeter gun. In fact only a month since a gentleman manufacturing taps and dies—a line that constitutes an anti-metric stock argument by the way—told the writer that over half of the screws and nuts that he is now turning out are on a metric basis. That the millions of our boys and our war workers will come back from France thoroughly familiar with metrics, and therefore metric advocates, goes without saying. And the advance of the Allies by kilometers, as read in our daily press, will gradually educate our general public to understand that meters, liters and grammes are not the fantastic creations of cob-webby brains, that anti-metricists would have us believe.

In conclusion, a word on scrapping. The best "scrappers" of all, the anti-metric protagonists hold before the eyes of their supporters, notably in the machinery trade, the awful consequences, the financial ruin, that awaits them, should the metric system become generally used in this country, by reason of consigning valuable machinery to the scrap heap.

The argument is as foolish as are most half-truths. It is about as reasonable as to argue that it is good business to continue to use a soda fountain of the vintage of 1890 instead of buying a modern sanitary apparatus because forsooth the scrapping of the antique "fizz squirter" will mean the loss of a few hundred dollars.

It is on a par with the short-sighted policy of most American coke oven operators prior to the war in refusing to scrap their archaic "beehive" plants and as a result we all know that the beginning of 1915 found us confronted by a coal-tar famine.

The "beehive" ovens were scrapped that year and were replaced by "recovery" ovens at great expense, but that expense has been paid several times over since then by the increased profits accruing from the saving effected by recovery-oven operation.

A final instance of scrapping that may be cited is one affecting the tire indus-

try. A year or so ago, the writer discussed with a scientific friend connected with a great rubber corporation, the campaign of education carried on by the American Metric Association and found a sympathetic listener, so sympathetic that the gentleman in question took up the matter with the executives of his company. Later he reported that the officials hesitated about taking a stand favoring the metric system as a change from old standards to metric ones would mean thousands of dollars of molds consigned to the scrap heap. Again we were confronted by the scrapping bugaboo.

It was therefore with surprise and interest that the following news telegram was noted in the daily papers:

Washington June 28. Immediate reduction in the number of types and sizes of automobile tires from 287 to 32 has been determined upon by automobile tire manufacturers in accord with recommendations of the Conservation Division of the War Industries Board. Under the program announced to-day, by Nov. 1, 1920, all but nine types and sizes will have been discontinued.

Here is a case of wholesale scrapping in the service of efficiency and economy engaged in by the same business men who a year since disapproved of scrapping tire molds. As in this case, the adoption of the metric system will mean some scrapping, but it will mean scrapping in the service of efficiency, and economy and in the conservation of time; the most important asset that we possess in these stirring days.

POWDERED IPECAC.

SHOULD IT BE RECOGNIZED IN THE PHARMACOPOEIA.*

BY WILLIAM W. DAVIES.¹

The Government has been in the market for supplies of Powdered Ipecac and recent assays made at the Chemical Laboratory of the Medical Supply Depot, U. S. Army, New York, N. Y., have invariably been of high test drug. As a result of this, it occurred to the writer that a standard, giving the maximum percent of ether-soluble alkaloids which should be found in Powdered Ipecac, would not only help to conserve the supply of this drug but also would insure a greater uniformity in dosage and in the products compounded with it.

The U. S. P. IX, which gives a minimum requirement of 1.75% ether-soluble alkaloids for the "whole drug," but sets no maximum limit, does not recognize Powdered Ipecac.

Samples of the "powder" tested here have assayed as high as 2.45% alkaloids, or 40% stronger than the minimum requirement of the U. S. P. IX for the "whole," namely, 1.75% alkaloids.

In Circular No. 6, issued August 1918, the War Department asked for bids on 500 pounds of Powdered Ipecac. If this should have been furnished with 2.45% of alkaloids it would be equivalent to 700 pounds of the drug testing 1.75%, in other words there would be 200 pounds of Ipecac taken out of the market unneces-

* Authority granted to publish this article by the Board of Publication of the Surgeon General's office, U. S. Army, October 25, 1918.

¹ Sergeant, Medical Department, U. S. Army.

sarily and needlessly, permitting \$850.00 worth of Ipecac to be wasted as well, unless it is diluted to the minimum standard before using or the equivalent taken.

Again, unless the high-test drug was diluted by the pharmacist using it, or an equivalent amount taken, which is considered doubtful, as war-time circumstances might not permit of it, the product he would compound from it, as say Dover's Powder, might vary 40% in Ipecac alkaloids from the same product compounded with drug testing 1.75% alkaloids. This is a variation much greater than the U. S. P. intends to admit of its products and one which in some cases might produce a dose possibly contraindicated in a patient to whom it is given.

For all of the above reasons, therefore, it is concluded that Powdered Ipecac should be recognized in the U. S. P. and that a maximum requirement of 2% ether-soluble alkaloids, equal to the standard of the International Protocol, should be established. Thus Powdered Ipecac would be standardized to contain not less than 1.75% nor more than 2% of ether-soluble alkaloids. A precedent for this is seen in the U. S. P. IX in the case of Opium, which like "whole" Ipecac is used only in the manufacture of standardized products and, therefore, has merely a minimum requirement. Powdered Opium, on the other hand, which is comparable to Powdered Ipecac, is "finished product" and has both minimum and a maximum standard.

ADVERTISING PHARMACY TO PHARMACISTS.*

BY J. C. PEACOCK.

To-day, one of the most regrettable facts is that pharmacy needs to be constantly advertised to some of us as a thing worth while as a business or, as a means of building business with other things.

Every drug store trades on the reputation of pharmacy, but its right to do so is only in direct proportion to the thought and care which is bestowed upon the department of pharmacy which the establishment includes. Whether the pharmacist has one side-line or a thousand and one is his own affair, provided he does not neglect pharmacy. That some make successes of all of their departments is readily understood when we discover their close attention to details and methods of watching the progress of affairs within the departments. They also have the good sense to limit their departments to those which do pay. But there are only a few individual proprietors, in pharmacy and other lines, who are endowed naturally with or have cultivated this ability to such a degree of perfection as to derive a commensurate profit from many lines.

For this simple reason of human limitation—the individual can only do a few things well—pharmacy needs to be advertised to pharmacists to save us from the distraction of an alluring commercialism that to some seems imperative to financial success.

In conducting an average pharmacy for a number of years there is sure to accumulate a certain amount of side-line business which fits into the trade with more or less ease; but, beyond such, to search for further varieties seems to the writer like misdirected effort on the part of the proprietor upon whom will probably devolve the constant supervision of this stock. For, unless lines are found

* Read before Section on Commercial Interests, A. Ph. A., Chicago meeting, 1918.

which can be handled expeditiously and without much extra help and effort, serious inroads are made upon the pharmacist's time and thought, both of which, we believe, can be more profitably devoted to affairs of a pharmaceutical nature.

It is not clearly understood why men and women, after taking the trouble to educate themselves and graduate in pharmacy will, when embarking in business, intentionally enter into lines of merchandise in which all may compete; whereas, their special training has been to fit them to undertake a line of work in which there is a measure of restriction from competition, because of the training required. Competition must certainly be less in an art that is looked upon by the public as requiring a special training in addition to ordinary commercial ability, than in the handling of a line of commodities which the public looks upon as a mere exchange of goods for money. But do we as pharmacists appreciate this thought? From this viewpoint, if acceded, it must seem credible that each individual effort to improve and extend the practice of pharmacy helps just that much to remove it from the bewildering competition which besets plain commercialism, and tends to shield pharmacy from competition with any other line now carried in the drug store, or contemplated as addition. If we could but see beyond this perplexing question we would perhaps view what hope pharmacy has in the future. There is little doubt that the temptation to imitate what looks like prosperity is the influence which leads some to start off with a burden of side-lines; while others are impelled by a distrust of the possibilities of pharmacy itself ever becoming a paying business. One or the other of these influences is likely to prompt him who is about to venture upon the uncertain sea of proprietorship. While we should not deny him the right of apprehension, we should ask him to give pharmacy at least an equal chance. Though we cannot see past this perplexity, we get a reflected light of encouragement from beyond it—the light of material success that shines from the loyal efforts of those who having confidence in pharmacy as a necessity are living up to the requirements of it as the prime factor in the drug store. That they do this for profit is no secret with them nor with their customers. That they derive a profit is because they apply to pharmacy the same attention and rules of finance which they use on the strictly commercial side-lines. They have found that a profit can be had from pharmacy if the same quality of thought that is given to the promotion of those side-lines requiring special effort is devoted to the development of a pharmaceutical department. These men figure pharmacy into finance and finance into pharmacy; their attention is on their business; they are keen to learn, to know and to act; they know the cost of production; they know the “millstone about their neck,” called “overhead,” they are aware of wastes in time and effort as well as in materials; they study losses, and what cannot be eliminated is figured into expense so it can be met. They utilize their time and talents to learn all of this as the only safeguard against a diminishing profit. They build up their stock of drugs to meet the demands of their trade as to staples, new items and preferences; they insist on quality in what is left to their discretion because eventually it bears their names. They are attentive to the wants of their pharmacy customers, and render service that shows an appreciation of the patronage they receive; and yet they do not belittle their services by giving them away for fear of competition, for each of them has been convinced by results that the better pharmacist he is the less he need to concern himself about competition,

as the term is generally accepted. To them the outcome of all of this is worth the effort.

Then must these be the reasons, though only the homely ones of interest and attention in varied forms, why pharmacy develops in some establishments and why it fails to flourish in others? But we want to discuss the latter phrase in words that pertain more directly to such barren fields. It is reiteration, we know, but does not the neglect of one or more of these simplicities which foster pharmacy constitute a reason why the art becomes unpopular with some of its votaries? To such, we quote "Poor Richard,"—"Keep your shop and your shop will keep you." Indeed the persons who enter a shop for pharmaceutical merchandise or service may fail to find the pharmacist, although his material body stands before them, because some side-line, either within or outside of his store, so preoccupies his attention that he fails to represent pharmacy. Perhaps he does not realize that through lack of interest he is losing an opportunity to advertise pharmacy to the public for his own immediate good, to say the least.

The pharmacist, who does not appreciate that he has a chance to turn his skill and time into money by developing his pharmaceutical department, needs to be told to study anew the opportunities of an art that but awaits his efforts. Let him not fail, as many do, to count the employment of his time, his very life, as of real value, whether it be devoted to the making of a preparation dispensed to-day or in the future. For failing to do this is to inflict a hardship, both upon himself and upon his brother pharmacist who seeks to benefit all pharmacists by endeavoring to improve the price as well as the service.

And now we see that pharmacy depends upon those who trade upon its reputation for both the preservation of the art and for its further development.

Pharmacy now seems to us a business as well as an art; and it is equally clear that it demands at least side-line common sense to enable it to show a profit. It asks no more; the choice of the direction of your effort rests with you and so accordingly the outcome.

So much for pharmacy as a worth-while business in itself, or as a department properly conducted. But the practice of pharmacy is such a comprehensive service that there is no end to the things which can be done within its province for profit, or of influences which may be caused to emanate from it to the same end.

The ability to handle the most difficult prescription is a means to public estimation which no pharmacist can afford to neglect as a most effectual advertisement, while careful attention to the smallest detail, delegated to the pharmacist, is an indication of his thoroughness and dependability under minor circumstances; attention never fails to become a source of profit to those who are willing to devote it to the cause of pharmacy.

Indeed the practice of pharmacy offers the best advertising medium that the store which houses it and the side-lines affords; it is a service which begets confidence; there is no side-line that will compare to the practice of pharmacy as a builder of confidence among your customers; and confidence, so built, is a great asset, because it is the glitter of an untarnished satisfaction.

Therefore, let us practice pharmacy unceasingly, if for no other reason, than as an advertisement for the side-lines, especially, since its neglect is not adver-

tisement for either side-lines or pharmacy. And again, no matter what the apparent success of the drug store may be, it can be more, if more pharmacy is practiced.

The scarcity of help, and the uncertainty of merchandise are probably now causing many pharmacists to wonder whether they should devote their time and attention to pharmacy or to side-lines. But let them consider that they now have an opportunity to conserve the art during a period of stress from which they must emerge the gainers, if they are true to their trust. While, on the other hand, if they neglect pharmacy and devote its time to side-lines, they will find that they have developed departments of trade into which, later, many must of necessity enter.

So, to the pharmacist who is undecided as to his course, or to him who is looking for a new side-line to boost a lagging business, we advise "take on a little more pharmacy, or, apply a little more time and business thought to what pharmacy you have."

OUR SOLDIER AND SAILOR PHARMACISTS.

TO THE EDITOR OF JOURNAL OF THE A. PH. A.,

PHILADELPHIA, PA.

DEAR SIR:

The A. Ph. A. Pharmacists' Soldier and Sailor Advisory Committee contemplates a really worth-while work. We are determined to find a place for every pharmacist now in the service, and to that end we are going to get in touch with every drug store in the country. More particularly we are going to make an effort to find occupation for every disabled soldier and sailor pharmacist. It will be our effort also to induce those pharmacists who have been engaged in business on their own account to buy a now existing drug store in preference to the opening of new drug stores. Our plans include, with the coöperation of the Association of Pharmaceutical Faculties, to induce every returning pharmacist who has not had the advantage of a Pharmacy College education to acquire one, and where conditions will not permit this, we are seeking to arrange a plan under which every returning pharmacist without college training can have a special One Year Course. In further aid we are working to secure, with the coöperation of the Association of Boards of Pharmacy, the right of Registration in any state where a returning pharmacist may desire to locate on the strength of Registration which he may now have in his home state. The details of our contemplated plans are too many to enumerate here. Our task is an enormous one, for which we will need all possible help.

The Committee will appreciate to have suggestions which may serve it in successfully carrying on its work.

(Signed) FRANK H. FREERICKS,

CINCINNATI, O.,

Chairman.

November 18, 1918.

SECTION ON EDUCATION AND LEGISLATION, AMERICAN PHARMACEUTICAL ASSOCIATION.*

ABSTRACT OF MINUTES OF THE SESSIONS HELD IN CHICAGO, AUG. 14, 15, AND 16.

Chairman C. B. Jordan called the first session of the Section on Education and Legislation to order at 9.30 A.M., Wednesday, August 14, in Congress Hotel, Chicago.

C. A. Dye occupied the chair while the Chairman read his address.

Address of Chairman C. B. Jordan:

Fellow-Members of the American Pharmaceutical Association: This meeting of our Association takes place under most trying circumstances. Never in the history of the American Pharmaceutical Association has a meeting been held when our minds were so fraught with things foreign to Legislative and Educational Pharmacy. The thing that is uppermost in the minds of all of us is this World War. The thing that is most desired by all of us, and which is of the greatest import to all of us is the successful completion of the war. It matters little what we may say or do here, if that end be not attained. But I know that I express the firm conviction of all of you when I say that it will be attained.

Not a man, woman or child in the United States, but has been affected by its far-reaching results. It has been most forcibly brought home to all of us, and we have all been called upon "to do our bit."

American Pharmacy, has, I believe, nobly stood the test, and rendered well her part in this world crisis. The pharmacists of the United States have taken an active part in every Liberty Loan and Red Cross drive, in every Y. M. C. A. and K. C. campaign; in National, State and County Defense. Not only have we sent our young graduates and registered pharmacists to the front, but even young proprietors have entered the service. The drug stores of the country have sold Thrift and War Saving Stamps, have been repositories for French and Belgian Relief, and recruiting stations for Marines.

The colleges of pharmacy have done their part by preparing men for the service with regular and special war courses, by collecting and preparing drugs and medicines, and by even giving members of their instructional forces to the service.

Our young pharmacists have entered every branch of the service—Medical Corps, Engineering Corps, Infantry, Artillery, Navy, Gas Defense, Sanitary Corps, Aviation, and Ordnance Department, and are acquitting themselves well in all places. It was my good fortune to visit the Great Lakes Naval Training Station recently and to talk with the Assistant Surgeon of the Hospital Corps. He recounted with a great deal of pride the achievement of the Naval Hospital Corps, made up almost entirely of graduate and registered pharmacists.

The effects of the war are such that it is impossible to consider our legislative and educational problems apart from them. It has shown us our short-comings and has awakened us, as we never were awakened before, to the realization of our duties to the Nation and to ourselves. A number of years ago the N. A. R. D. attempted to secure recognition for the pharmacists in the Army, but they found that the pharmacists were asleep at the switch, were not interested, and lukewarm toward the movement. How well the war has awakened us. To-day we realize our mistake and are trying to remedy it, but we may have been aroused from our slumbers too late.

Three things, it seems to me, stand out and demand our attention: First, Securing legislation giving recognition to pharmacists in the Army. Second, Closer organization of American Pharmacy. Third, The attitude of the Government, of prominent pharmacists, and of the laity toward professional pharmacy, pharmaceutical education, and colleges of pharmacy. These questions are interdependent and cannot be considered apart from each other, therefore, I will not attempt to consider them separately but will endeavor to touch all of them in this discussion.

The profession of pharmacy and especially the colleges of pharmacy have suffered a cross-fire of criticism all year. Dr. J. H. Beal in "Facing the Facts," and Mr. H. B. Mason's editorials have criticized us for not recognizing that pharmacy has practically passed to commercialism, and our colleges are not, in their estimation, giving sufficient time to commercial subjects, but are

* Papers with discussions will be printed apart from minutes.

going to seed in professionalism which is not needed in present day practice. On the other hand the Government, through the office of the Surgeon General, criticizes us for devoting so much time to commercialism and so little to professionalism. They are painfully frank in their statements and say that colleges of pharmacy are educating mercantile clerks for the retail pharmacists of the country.

So we are criticized on the one hand for giving too much time to one phase of pharmacy, and not enough to the other, and criticized on the other hand for giving too much time to the other and not enough to the one. The colleges are placed somewhat in the position of the husband whose good wife scolded him if he did things and also scolded him if he didn't do them. He remarked, "It's mine coming or going, for I get Hell if I do and Hell if I don't." Ordinarily such criticisms are passed by as not having sufficient basis in facts to be worthy of serious consideration. However, coming from the sources that these come from, and with the acridity with which they are uttered, I believe they deserve our consideration.

There is one serious criticism of pharmaceutical education and of colleges of pharmacy that we all can agree upon, and that is that pharmaceutical education is not built upon a good, strong foundation and that our colleges are not demanding sufficient preliminary training of the entering students. It matters not whether the education of the pharmacist should be along commercial or along professional lines, this criticism still holds, for no true education can be built upon a poor foundation. The student who wishes to secure a college education along any other line finds that he must at least have a high school education before entering college. Medicine, Dentistry, Veterinary Science, Law, Commerce, Liberal Arts, Engineering, and even Agriculture, demand a high school education for entrance. Pharmacy stands alone in not demanding such high requirements. Can it be that Pharmacy is right and all the others are wrong? If it is necessary for the successful practice of Medicine, Commerce, Law, Engineering, etc. that the beginners have a broad general education, it is also necessary for the pursuit of Pharmacy. If the man who manages a farm finds that this preliminary education is necessary, how much more necessary is it for the man who follows a scientific profession or meets the fierce competition of the commercial world?

Some may argue that this particular education does not teach the student how to accumulate dollars and cents or how to create a desire for a commodity that he has to sell. This training develops the mind of the young student and teaches him correct habits of thought. In fact, many of our young people are unable to direct their thinking, while many others are prone to avoid mental exercises. This training, although it may not bear directly upon the work in hand, is of great value in mental development, and no one needs this mental development more than the pharmacist. He comes in contact with people in all walks of life, and ought to be able to meet these people upon an equal footing and discourse intelligently upon the topics of the day. In particular he ought to be able to speak intelligently concerning medicines and public health questions. If he does not have a good fundamental training, he will find himself handicapped in meeting this important obligation.

There is something necessary for the full development of the American citizen other than the ability to accumulate this world's goods. We are learning to-day, as we never did before, that a full rounded life gives as well as receives and, to be truly successful, we must render service to our neighbors as well as secure a competence for ourselves. If the war has taught us one thing it is this, that he who renders service to his fellow man and to the nation is more worthy of respect and honor than he who accumulates wealth. Not a little part of this service in a commonwealth like ours consists in activity in public welfare work, whereby the respect of the community is secured. Have the pharmacists of the country done their full measure along this line? Do they command the respect that an educated professional class should command? Do they take as active a part in public life as is expected of college men? To answer these questions I have but to state that we have endeavored for a year now to secure recognition in the Army, and have failed. What if somebody has the lid down and is sitting upon it! If we had sufficient public sentiment back of us, the lid would soon be lifted. The chemists of the country had no particular difficulty in securing recognition. The Sanitary Corps was organized especially to give recognition to bacteriologists, food chemists, sanitary and public health workers. Even nurses have received recognition, but we have failed. We failed because we lacked the necessary public sentiment to force recognition, and, I believe, that one of the

chief reasons why we lacked it, is because our profession ranks very low in educational attainment. When a man, whose only qualifications are that he has sold cigars, or "jerked" sodas for four years, can cram for a pharmacist's examination and pass it, and thus become a bona fide member of our profession, we cannot expect to command much respect, and we are not getting it.

Not until the retail pharmacists of the United States awake to the importance of higher entrance requirements for their profession and demand them, will we be able to place pharmaceutical education on a plane that will command the respect of our sister professions and of the public. As long as the retail pharmacists demand cheap registered men and lend their support to diploma factories that turn them out, just so long will pharmaceutical education be at a low ebb. The colleges themselves are unable to remedy the difficulty, because there are bound to be "black sheep" in the fold if there is financial gain in being black.

Turning now to the criticisms of which I have spoken. Doctor Beal, in "Facing the Facts," very ably presents the problems that confront us to-day. He discusses the whole question and shows us the reasons for the rise of "commercial pharmacy" and the decline of professional pharmacy. He asks, "Shall we like other small industrial proprietors, accept the transformation from producers to store-keepers and distributors, or shall we linger in a fool's paradise of hoping for some special dispensation of Providence to save us from the operation of economic laws that are universal in application?" He then proceeds to show us that "commercial pharmacy" is just as ethical as professional pharmacy, or at least can be made so.

Mr. H. B. Mason, commenting editorially upon the speech of Dr. Beal, says that this address should have been given before a group of pharmaceutical teachers and writers instead of before a group of retail pharmacists, as they have been "facing the facts." Continuing he says, "Too many of the college professors and too many of the writers and lecturers on pharmacy are still seeking, like Mrs. Partington, to sweep the ocean back with a broom. The college curriculum becomes more and more scientific. Little or no attention is paid to commercial subjects. The student is told that he must go out into the highways and byways and play the part of a pharmaceutical Moses and rescue the calling from the disgrace into which it has fallen."

In the July issue of the *Bulletin*, Mr. Mason says, "Only a half-hearted recognition of 'commercial pharmacy' has been made. Perhaps the most unfortunate feature of the solution lies in the fact that the colleges are not so blind as to what is going on as they are stubborn. They see the truth, but they refuse to recognize it."

Over and against such criticism we have that of the office of the Surgeon General of the Army in replying to the Attorney for the N. A. R. D. when he requested that students in pharmacy be furloughed to complete their college courses. This Office made it very clear that it considered a great majority of the colleges of pharmacy as colleges in name only, since their most important function was preparing mercantile clerks for retail pharmacies. There are only about eight real colleges of pharmacy in the United States, according to their expressed opinion, and the Surgeon General hesitates to recognize them because of the difficulty involved in denying recognition to the other so-called colleges.

At the recent meetings of the American Medical Association the Council refused to endorse the recognition of the pharmacists in the Army. When the members of the Council were asked why they refused to do this, they said that they could not afford to recognize as equals a class of men with as little professional education as the pharmacists have.

Again, the fact that we have not been able to convince the House Committee on Military Affairs of the necessity of recognition of pharmacists in the Army is good evidence that they consider our professional training insufficient.

Thus our colleges are attacked by one set of critics for not devoting more time to commercial and less to professional subjects, and by another set of critics for giving so much attention to commercial and so little attention to professional subjects.

I maintain that the colleges of pharmacy are giving the retail pharmacists what they demand. There are a goodly number of retail pharmacists that are demanding better and better professionally prepared graduates and our better colleges of pharmacy are meeting this demand. On the other hand, there are many retail pharmacists that demand a commercially trained man with a sufficient smattering of professionalism to get him by the State Board of Pharmacy, and we have a number of colleges that are supplying this demand.

Mr. Mason is wrong when he says that the colleges are stubborn. Those colleges that, in his opinion, are going to seed in professionalism, have a deep realization of the obligation, often a matter of life or death, that devolves upon pharmacists and they are willing to sacrifice numbers in order to protect the public from incompetence. When the dispensing of prescriptions is separated from commercialism and done entirely by men who love their work sufficiently to take pride in it and do it well, then we will have a reorganization of our colleges that will meet the needs of both sets of critics.

The trouble lies in the attempt of the retail pharmacists of the country to do two entirely different things well at the same time. This is impossible. Either they should devote themselves to commercialism or to professionalism. I have heard retail pharmacists say that they were not dispensing pharmacists and catered entirely to commercial trade. Yet the same men retain the sign "Prescription Pharmacists," and resent any imputation that they are not fully qualified for professional work. They refuse to remove their prescription laboratories, and turn over to their neighbors any professional work. The prescription sign and laboratory add a respectability to their business and they intend to retain it regardless of the fact that they are not devoting any time or interest to professional work.

A certain retail druggist has a card advertisement in every street car in his city, setting forth the care and precision used in compounding prescriptions in his place of business. I visited his store and expected to see a modern prescription laboratory. In this I was disappointed, for it was not what you would expect from the advertisement. When I remarked that he must do a good prescription business, I was surprised to have the proprietor tell me—with a sweep of his hand toward his well filled shelves—that he made his money out of paints, wall paper, patent medicines, drug sundries, etc., and that his prescription work amounted to nothing. Yet it was his prescription work that he was advertising. He was using it as a cat's paw to get people into his store so that he might sell them paints, wall paper, drug sundries, etc.

The cases that I have set forth are not unique and can be multiplied many times throughout the United States. Until the retail pharmacists stop using their professionalism only as a means to further their commercialism, we cannot expect to advance.

Many retail pharmacists demand cheap help and say that they are not able to pay the college prepared man, and are therefore in favor of keeping the requirements low that they may secure cheap help. One of the chief arguments against "prerequisite" legislation is that it will increase clerk hire. If these men are not able to pay competent help, why, under the sun, do they not give up their prescription work that is bringing them no profit and devote their entire attention to commercialism?

It is absolutely impossible to develop commercial and professional pharmacy together. We have tried to do it ever since American pharmacy began and have failed, as is evidenced by the criticism I have just set forth. Either one or the other or both will suffer if we continue to do it. They are incompatible, and we may as well "face the facts" and recognize the incompatibility and with true pharmaceutical skill remove it. As long as we continue to attempt to develop them together we will fail, because it is based upon the wrong assumption, that we can become proficient in two quite different things at the same time. The man who tried to kill two birds with one stone missed them both, and we have also missed both the full development of "professional pharmacy" and of "commercial pharmacy." European countries have recognized the absurdity of such an attempt and have solved the problem. Why not follow their example?

Let us then get back to a true premise and separate them and develop each without the encumbrance of the other—have colleges to train "commercial pharmacists," and also colleges to train "professional pharmacists." One class of education is just as ethical as the other. The old idea that to educate for merchandising is unethical is antiquated and out of date. We have changed our ideas a great deal regarding what is ethical and what is unethical, and the man who retains the old notion that "commercial pharmacy" is unethical should wake up and realize that we are living in an age that is wise enough to consider any useful occupation as ethical.

Let us have good colleges with high requirements that will give our boys a good broad education together with expert training in "commercial pharmacy," and also good colleges that will do the same for "professional pharmacy." When we do this, then and then only will we

reach a solution to our difficulties. "Professional pharmacy" has been a millstone around the neck of "commercial pharmacy" and vice versa long enough. Let us cut them free and permit them to develop, each to its full measure.

You may ask how this is to be done. I answer, "I do not know." I only know that it is necessary for the full development of each. The operation may be a little severe, but the patients will soon recover from it and once they get upon their feet they will produce marvelous developments.

May I suggest a plan by which this may eventually be accomplished without disturbing business conditions. All registered pharmacists of to-day will retain their registration and enjoy their full privileges, therefore we must begin with those who are entering. If all entering the calling be divided into two classes, say pharmacists and druggists, with different requirements and privileges for each of them, then the first step toward this end would be made, and eventually our aim would be accomplished. This could be done without disturbing business, or causing hardship to any one.

Require of druggists a pharmaceutical competence similar to that required of assistant pharmacists to-day or even that required of registered pharmacists, and in addition a thorough training in all commercial branches. Grant them the privilege of conducting a modern commercial drug store, but not the privilege of compounding prescriptions or handling the more dangerous poisons and narcotics.

Require of pharmacists at least a training equivalent to that required for a baccalaureate degree, including the usual cultural subjects of English, mathematics, modern languages, physics, history, economics, etc., and a thorough training in chemistry, pharmacy, materia medica, bacteriology, physiology, chemistry, and food and drug analysis.

Men with such a training would be competent to dispense medicines, handle narcotics, and other poisons, and do analytical work for the physician and public health boards. There is to-day a demand for men qualified for making urine, gastric, bile and feces analyses; bacteriological and physiological analysis; and the demand for such experts is growing instead of decreasing. A pharmacist prepared as suggested would be qualified to do all of this work. In addition the demand for laboratory analyses for the protection of public health is growing, and in some states they are advocating a public analyst for each county. Here is another opportunity for our pharmacists. Before very long the prescription business done by our present pharmacists would be turned over to them and this—together with the sale of sick-room supplies, surgical instruments, etc.—would make a very good competence for the pharmacists. They would be conducting a purely ethical pharmacy, in the present-day acceptance of the meaning of this term, and in addition a bacteriological, analytical, and physiological laboratory.

I think I hear you say that there would not be a sufficient amount of work to support even a limited number of such pharmacists. My own city alone, a city of 20,000, could support three or four such pharmacists if all prescription work were turned over to them. At present a man is employed all of his time in making urine, gastric, bile, bacteriological and physiological analyses, with an increasing demand for this kind of work. It may be that smaller communities could not support such an establishment at present, but time will adjust this difficulty and meanwhile the present registered pharmacists could handle the prescription business.

The colleges of pharmacy could easily adjust themselves to such a plan. Our present two-year courses, if extended and modified to suit the needs, could easily educate druggists, and our four-year courses the pharmacists. The graduates of our four-year courses are not entering the drug stores to-day, because clerk hire is so low, and other activities offer better opportunities. This is unfortunate, because pharmacy is losing its best prepared men. This would be changed with the newer opportunities that would present themselves in "professional pharmacy."

When we require of pharmacists a training similar to that which I have outlined, then the matter of recognition will take care of itself. In fact, their services would be demanded, conscripted if need be, and proper recognition in the form of commissions would be given to them.

American pharmacy is so unorganized that it is almost impossible to secure united action on any matters pertaining to the professional side of the calling, albeit we have preached organization for the last fifty years. Such is not true of other lines of work. We have excellent evidence of the power of organization in the strength wielded by the American Medical Asso-

ciation. In my own state about ten percent of the registered pharmacists are members of their state organization, while ninety percent of the ice men are members of their organization. It has been impossible to well organize the pharmacists of any of the states except those in which membership in the state organization is required by law. The mere handful of retail pharmacists that belong to the American Pharmaceutical Association is conclusive proof that the organization of pharmacists along professional lines is next to impossible.

Along the commercial lines the endeavor meets with much better success, and the N. A. R. D. has a very well perfected organization, that is producing results. One reason for this is because many retail pharmacists do not do a sufficient "professional" business to become interested in the scientific phase of their calling. The scientific sections of our State Associations receive scanty attention. I have seen retail pharmacists sit with a bored expression on their faces throughout an interesting paper on some phase of "professional pharmacy." They were not interested because they could not apply the ideas to their business.

Now if the separation that I have referred to were made, we would throw together men interested in the same things, the merchant pharmacists and the prescription and analytical pharmacists. As a result of common interest and common purpose these men would form a closer and more effective organization and another one of our problems would be solved.

The idea of the separation of "professional" and "commercial" pharmacy is not a new one, by any means, but one that has been thought about and discussed many times. Papers on this subject have been presented to this Section before. In "Facing the Facts" Dr. Beal says, "The results (that is a frank acceptance of commercial pharmacy), will be an acceleration of the present trend towards a division of the drug trade into prescription pharmacists and merchant pharmacists, each class rendering useful service and each having scope for development along the lines of their respective preferences."

I firmly believe that this separation is the only satisfactory solution of the problem and that the time is ripe for both parties to take the case to court and sue for a divorce. No organization is better fitted to judge the case than the American Pharmaceutical Association, therefore, in conclusion, I would suggest that this Section recommend to the Council that a Committee be appointed to study this question for a year and present to us at our next annual meeting a plan of separation that will cause the least amount of harm and the greatest amount of good to both of the unhappy parties.

C. B. JORDAN,

Chairman.

F. J. Wulling moved and F. E. Stewart seconded the motion, that the address be printed in an early issue of the JOURNAL and the recommendation of the address be referred to the Council. Carried.

Report of Secretary W. F. Rudd:

MR. CHAIRMAN AND MEMBERS OF THE SECTION ON EDUCATION AND LEGISLATION:

Before attempting to write this report your Secretary read again the one submitted in 1917 to this Section, by your present Chairman.

Those of you who were present on that occasion will recall that his report brought together in a most comprehensive way what the Colleges, State Legislatures and State Boards of Pharmacy were doing. I concluded that the report of this year should bring to the Section all changes in State Pharmacy Laws that have been made since the last annual meeting so as to keep the record up to date. In addition to this it seemed wise to collect and tabulate certain facts relative to State Board statistics. Accordingly, a questionnaire was sent to each State Board Secretary as follows:

- "1—What changes have been made in the Pharmacy law of your State since January 1, 1917?
- 2—What percent of applicants for examination in your State since January 1, 1917, have been graduates of Colleges of Pharmacy?
- 3—Number of applicants for examination for each of the following years:
April 1, 1914, to April 1, 1915
April 1, 1915, to April 1, 1916
April 1, 1916, to April 1, 1917
April 1, 1917, to April 1, 1918

4—Number of applicants granted registration for each of the following years:

April 1, 1914, to April 1, 1915

April 1, 1915, to April 1, 1916

April 1, 1916, to April 1, 1917

April 1, 1917, to April 1, 1918."

Question No. 2 relative to the percentage of applicants who were college graduates was suggested by Chairman Jordan. Questions 3 and 4 relative to number of applicants for examination and the number successful were suggested by the writer's own observation of results in Virginia. It has always seemed incongruous that often not more than one-third of those admitted as eligible for any formal examination, should be able to pass the same successfully.

The results for these States as tabulated below are striking. The writer cannot but feel that they furnish the basis for a strong indictment against the present system of admitting candidates to State Board examinations.

Replies have come in from thirty-one States and Question 2, as to percentage of applicants who are college graduates, has been answered as follows:

| | | | |
|---------------------|----------------------------------------|---------------------|----------------------|
| Alabama..... | 20% | Florida..... | 50% (about) |
| Arkansas..... | (Reports none) (evidently an error) | Conn..... | No figures available |
| Illinois..... | 39% | Indiana..... | 47% |
| Iowa..... | 20% | Kansas..... | 40% |
| Kentucky..... | 78% | Massachusetts..... | No statistics |
| Maine..... | 15% (about) | Maryland..... | 87% |
| Michigan..... | 10% | Minn..... | 12½% (about) |
| Missouri..... | 10.7% | Nebraska..... | 86% |
| New Hampshire..... | (No record) | New Jersey..... | (No record) |
| New Mexico..... | (No record) | New York..... | 100% |
| North Dakota..... | 100% | North Carolina..... | 19% |
| Ohio..... | 28% | Pennsylvania..... | 100% |
| Rhode Island..... | 80% | Tennessee..... | 50% (guess) |
| South Carolina..... | 68% | Texas..... | 49% |
| Vermont..... | 40% | West Virginia..... | 75% |
| Virginia..... | 35% | | |

The States with "prerequisite" law already in force report, of course, 100 percent. The States showing lowest percentage of graduates are: Maine, Michigan, Minnesota, and Missouri, all being below 20 percent. The State not having a "prerequisite" law, showing the highest percentage of graduates, is Maryland, with 87 percent. The general average for this report is 50 percent of graduates. That is to say, with States having "prerequisite" legislation only 50 percent of all men making application for examination in the States are graduates in pharmacy.

The thirty-one States returning questionnaire report on questions 3 and 4 are as follows:

| April 1914 to April 1918. | | | | | | | |
|---------------------------|-----------------|--------------------|--------------------------|-------------|-----------------|--------------------|--------------------------|
| States. | No. Applied. | No. Successful. | Per cent. Successful. | States. | No. Applied. | No. Successful. | Per cent. Successful. |
| Ala..... | 446 | 359 | 80.5 | N. J..... | 2315 | 688 | 29.8 |
| Ark..... | 487 | 216 | 44.3 | N. Mex..... | 34 | 24 | 70.6 |
| Conn..... | 330 | 110 | 33.3 | N. Y..... | 2592 | 1885 | 72.7 |
| Ill..... | 2355 | 758 | 32.2 | N. D..... | 125 | 71 | 56.8 |
| Ind..... | 1029 | 513 | 49.7 | N. C..... | 518 | 227 | 43.8 |
| Ia..... | 1065 | 514 | 48.2 | O..... | 2105 | 1029 | 48.8 |
| Mass..... | 2042 | 630 | 30.8 | Pa..... | 2437 | 1667 | 68.0 |
| Kan..... | 601 | 442 | 73.0 | R. I..... | 137 | 98 | 80.0 |
| Ky..... | 355 | 134 | 37.7 | S. Car..... | 263 | 153 | 58.0 |
| Me..... | 410 | 136 | 33.2 | Tenn..... | 337 | 142 | 42.1 |
| Md..... | 382 | 218 | 56.7 | Tex..... | 629 | 385 | 61.2 |
| Mich..... | 1340 | 672 | 50.2 | Vt..... | 128 | 45 | 36.0 |
| Minn..... | 1432 | 559 | 39.0 | Va..... | 672 | 307 | 45.0 |
| Mo..... | 529 | 310 | 58.5 | W. Va..... | 268 | 158 | 59.0 |
| Neb..... | 600 | 300 | 49.2 | | | | |
| N. H..... | 218 | 82 | 37.6 | | 26190 | 12832 | 48.9 |

Tabulating the preceding by years we get the following results:

| | Total No. Applied. | Total No. Passed. | Per cent. Passed. |
|-------------------------------|-----------------------|----------------------|----------------------|
| April 1914 to April 1915..... | 7088 | 3501 | 49.3 |
| April 1915 to April 1916..... | 7328 | 3493 | 47.9 |
| April 1916 to April 1917..... | 6961 | 3297 | 47.3 |
| April 1917 to April 1918..... | 5855 | 3267 | 55.8 |

These figures tell in unmistakable terms what most of us know from experience. In the past four years the number applying for examination has decreased from 7088 to 5855, or a difference of 1233. The number successful, however, was only 234 below the number registered four years ago. This seems to mean one of two things: either the material is better or the boards are more lenient. Maybe both conditions contributed to this end.

Repeating what was said in the first part of this report, it would seem that the percent of those successful in any set of examinations where proper precautions are taken in admitting candidates, should always be much above the average shown in the figures above. Why should candidates manifestly unfit be allowed to come up repeatedly without any additional preparation? Perhaps nothing has done as much to bring pharmacy examinations into disrepute as the fact that the same men continue to take these examinations year after year. This condition needs to be changed. This Section can at least go on record in favor of some method by which a limit may be set to the number of times a man may come up for examination.

Very few changes have been reported in the pharmacy laws of the thirty-one States returning questionnaires. Massachusetts has a new narcotic law; New Jersey a "prerequisite" law to take effect September 1920; Rhode Island reports changes in narcotic provisions; Virginia passed a "prerequisite" law which will go into effect in 1922.

And so the good work goes on. Each year adds one or two States to the list requiring graduation before registration. At the present time nine States are enrolled in this progressive list. May the time not be far distant when not one shall be left out.

Respectfully submitted,

WORTLEY F. RUDD,

Secretary.

W. H. Ziegler moved and Bernard Fantus seconded the motion to refer the report for publication. Carried.

The report of the Committee on Patents and Trade Marks was presented by Chairman F. E. Stewart. Motion of L. E. Sayre to receive the report was carried by vote of the Section.

A paper "What is the meaning of a degree in pharmacy" was read by the author, L. E. Sayre. (See August JOURNAL A. PH. A., p. 700.)

The next paper, entitled "The District of Columbia Advertising Law," was presented by L. F. Kebler.

After considerable discussion the following resolution was proposed by M. E. Dorsey:

"Resolved, That the Committee on Legislation, A. Ph. A., be instructed to take up with the War Board at Washington, D. C., the control of advertising pertaining to venereal diseases, and by coöperation with the Advertising Clubs of America, a national organization, endeavor to eliminate all advertising pertaining to venereal diseases from the daily and weekly press."

After some discussion a motion to adopt was carried.

The following papers were read and, after discussion, referred for publication:

"Publication of Potent Drug Content in All Ready-made Medicines," by Oscar Dowling.

"Pronunciation of Pharmaceutical Latin," by A. B. Stevens.

The report of the Committee on Regulation of the Transportation of Drugs by Mail was read and accepted.

A paper "What Shall We Teach" was presented by H. H. Rusby and after discussion referred for publication.

The first session of the Section on Education and Legislation was then adjourned.

SECOND SESSION.

The second session of the Section on Education and Legislation was convened at 9.30 A.M., Thursday, August 15, by Chairman C. B. Jordan.

The Committee on Nominations for officers for the ensuing year reported the names of nominees.

The following papers were read, discussed and referred for publication:

"Chemical Theory—A Practical Method of Teaching," by Freeman P. Stroup. (See October JOURNAL A. PH. A., p. 864.)

"Plan of Civil Administrative Code of Illinois in Its Relation to the Pharmacy Act," by F. W. Shepardson.

"The Teaching of Plant Chemistry," by Dr. Nellie Wakeman.

"Is Research Work Along Lines Suggested by the Last Revision U. S. P. Possible and Practicable in Schools of Pharmacy?" by C. S. Chase.

"Entrance Requirements to the Practice of Pharmacy," by W. G. Gregory. (See October JOURNAL A. PH. A., p. 870.)

"So-called Commercial Pharmacy Should not be Taught in Colleges of Pharmacy," by Frederick J. Wulling. (See October JOURNAL A. PH. A., p. 872.)

"The Future Pharmacists now in the Army and Navy," by H. F. Freericks. (The recommendations of this paper are printed in the minutes of the Sixth Session of the Council, November JOURNAL A. PH. A., pp. 1004 and 1005.)

A ballot was taken on the nominees for officers for the ensuing year; the result of the election to be announced at the Joint Session of this Section, the National Association of Boards of Pharmacy and American Conference of Pharmaceutical Faculties.

The second session of the Section on Education and Legislation was then adjourned.

JOINT SESSION OF SECTION ON EDUCATION AND LEGISLATION, A. PH. A., AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES AND NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

The joint session, as indicated above, was called to order by Chairman C. B. Jordan at 9.30 A.M., Friday, August 16.

The first order of business was the report of Secretary Theodore J. Bradley of the proceedings of the American Conference of Pharmaceutical Faculties. (See September JOURNAL A. PH. A., p. 799.) After some discussion the report was accepted.

Chairman F. E. Stewart read the report of the Committee on Patents and Trade Marks and also a paper entitled "Is the Exclusive Ownership and Use of Coined Names for Chemicals, Drugs and Their Preparations Objectionable and Should it be Subject to Limitation and Restriction?"

It was moved to accept the paper and report and refer them to the Publication Committee. Carried.

The result of the election of officers for the ensuing year was announced by Julius A. Koch, as follows:

Chairman—W. F. Rudd, of Virginia.

Secretary—C. A. Dye, of Ohio.

Associates—William Mansfield, of New York; E. L. Newcomb, of Minnesota; W. H. Ziegler, of South Carolina.

The report of the Fifteenth Annual Meeting of the National Association of Boards of Pharmacy was read by Secretary H. C. Christensen. (See September JOURNAL A. PH. A., p. 801.) After brief discussion the report was accepted.

Chairman Frank H. Freericks presented the report of the Committee on Model for Modern Laws Pertaining to Pharmacy. It was voted to continue the Committee and the report was referred for publication.

Chairman C. A. Dye presented the report of the Committee on Relations of Colleges with Boards of Pharmacy. It was referred to the American Conference of Pharmaceutical Faculties.

Chairman E. G. Eberle presented the report of the Fairchild Scholarship Committee.

REPORT OF THE CHAIRMAN OF FAIRCHILD SCHOLARSHIP COMMITTEE.

PHILADELPHIA, August 1, 1918.

As Chairman of the Fairchild Scholarship Committee my report has been made to the members of the Committee and also to Mr. Samuel W. Fairchild, so a report on last year's work simply requires me to speak of the results. Mr. Daniel Kollen, of New York, was the successful candidate, and his election met the approval of all members of the Committee and Mr. Fairchild as well. The next highest ranking candidate fell only 2.5 points behind, while the others were considerably lower.

The first American Fairchild scholar is of Russian birth, having been born in the city of Kishinef, State of Bessarabia, Russia, August 27, 1898. The father was a maker of wooden models for shoes; he died when Daniel was about eight years of age. The young man attended a Russian grammar school for about three and a half years and until April 1, 1910, when the family emigrated to the United States, arriving in New York City April 19. Two weeks after arrival Kollen entered Manhattan Public School No. 64, where June 29, 1913, the young man received his diploma. The spare hours and vacations were spent in the employ of his uncle at S. H. Ager's Pharmacy, 145 Avenue C, New York City, where he has ever since, up to the present, given his time between studies. September 9, 1913, Daniel entered DeWitt Clinton High School, New York City, from which he graduated June 30, 1917. His recommendations from the teachers and preceptor are excellent in every way.

All the papers concerned with the examinations are in my hands and I also have copies of all correspondence bearing on the subject. On February 15th I notified Mr. Fairchild of the election of Daniel Kollen, and at the same time advised him of the action of the Joint Conference as I understood it at the time, and enclosed the pages from the JOURNAL of January, 1918, 60-64. My letter follows:

February 15, 1918.

MR. SAMUEL W. FAIRCHILD,
WASHINGTON & LAIGHT STS.,
NEW YORK CITY.

DEAR MR. FAIRCHILD:—

I wrote you January 31 and was awaiting the return of the vote of the Fairchild Scholarship Committee and they have unanimously declared that Daniel Kollen, 600 E. 169th St., New York City, has won the Fairchild Scholarship which you so kindly donated. I do not

presume that any further action on our part is necessary and that you will take up the matter with the nominee. Of course, if you deem it necessary, I shall be glad to attend to the matter.

I take this opportunity also of bringing the matter of award for the next scholarship to your attention, and, if you decide to act in accord with the expression of the Section on Education and Legislation of the American Pharmaceutical Association, the American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy, it will be necessary for us to provide a different standard for the candidates and thereafter a different kind of examination. It would take up too much space in this letter and the action on my report will be found on the enclosed pages.

One argument for awarding the scholarship to a graduate is that there is more likelihood of giving it, not only to a deserving student, but, at the same time, to one who will apply himself for the benefit of pharmacy. The question came up of whether in awarding one scholarship it was not better to give it to one who had shown his aptness rather than one who had all the college years before him. I would be glad if you would advise me of your decision as early as you can.

The Fairchild Scholarship Committee for this year is composed of the following members: Dr. A. R. L. Dohme, Pratt & Howard Sts., Baltimore, of the American Pharmaceutical Association; Prof. Henry Kraemer, Univ. of Michigan, Ann Arbor, of the American Conference of Pharmaceutical Faculties; W. P. Porterfield, 61 Broadway, Fargo, N. D., of the National Association Boards of Pharmacy, and the Editor of the JOURNAL.

I have notified Mr. Daniel Kollen of his election.

With expression of sincere regard,

Respectfully,

(Sgd.) E. G. EBERLE."

In reply, Mr. Fairchild answered:

"NEW YORK, February 18, 1918.

MR. E. G. EBERLE, CHAIRMAN,
FAIRCHILD SCHOLARSHIP COMMITTEE,
PHILADELPHIA, PA.

DEAR MR. EBERLE:—

I notice with pleasure the article in the JOURNAL, page 60, recommendation No. 5. 'It is the sense of the Conference that Mr. Fairchild could render the greatest service to pharmacy by offering the scholarship to a graduate pharmacy student.' Now, Mr. Eberle, I shall be delighted to do so, and think perhaps it is the best thing we could do with the Scholarship, so you may change it around and do anything that you please.

When does Mr. Daniel Kollen begin his studies? Then we will know when to send him a cheque.

With kind regards and best wishes, I am

Yours very truly,

(Sgd.) SAM'L W. FAIRCHILD."

and my answer was as follows:—

"February 19, 1918.

MR. SAMUEL W. FAIRCHILD,
WASHINGTON & LAIGHT STS.,
NEW YORK CITY.

DEAR MR. FAIRCHILD:—

I have your splendid letter of February 18 and under the circumstances the Fairchild Scholarship Committee will undoubtedly be very much pleased to have your consent to offer your scholarship to a graduate pharmacy student. I am to-day sending out letters to that effect.

Relative to Mr. Daniel Kollen, he began his studies in Brooklyn College of Pharmacy last fall and is now a junior student there.

We are endeavoring to make haste with the next scholarship so that it can be offered for a graduate student for this year. This will then right the matter and there will be no further trouble in awarding the scholarship each year.

With expression of sincere regard,

Respectfully,

(Sgd.) E. G. EBERLE,

Chairman, Fairchild Scholarship Committee."

On February 19 I sent out the first letter, as a result of which the following were named as the Examination Committee: J. W. Sturmer, H. C. Christensen, Geo. C. Diekman, R. A. Lyman. A date, June 25, was named for Examination Day, but as it was impossible to reach a decision, notice of postponement was made and all pharmaceutical journals kindly printed the notice. There has been considerable correspondence and the decision was reached that final action would be taken during the meeting of the American Pharmaceutical Association in Chicago.

Respectfully,

E. G. EBERLE, *Chairman*.

Further report of the Committee on Award of the Fairchild Scholarship is printed in September JOURNAL A. PH. A., p. 824. Since then Chairman H. C. Christensen has advised that the name of no candidate has been presented this year for the Fairchild Scholarship.

Chairman R. A. Lyman presented the report of the Committee on Higher Educational Standards. After some discussion it was voted to refer the report to the American Conference of Pharmaceutical Faculties.

The paper presented at the close of the Second Session of the Section on Education and Legislation by Frank H. Freericks was discussed and, after approving of the recommendations therein, referred to the Council.

(As heretofore stated, the recommendations are printed in November JOURNAL A. PH. A., p. 1004. The Council has taken action and the Committee is now at work.)

The Joint Session of the Section of Education and Legislation, American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy was then adjourned.

WHAT SHALL WE TEACH?*

BY H. H. RUSBY.

The teacher who is thoroughly interested in the subject matter of the Syllabus cannot fail to be impressed by the objections that are advanced against the inclusion of matter that does not pertain to the particular department of instruction in which the objector is interested. It is a regular occurrence for such teachers to depreciate the value of and disparage attention to the subjects taught by others. Within the last few months the writer has been favored with the following views, partly verbal and partly written, from teachers whose schools are represented in the American Conference of Pharmaceutical Faculties.

1. "You make the subject of pharmacy entirely too prominent in the Syllabus. Pharmacists no longer manufacture their own preparations and they are getting farther away from it all the time. The pharmacist is becoming more and more a tradesman. What we want in the Syllabus is more attention to the commercial side of the business."

2. "Only the fundamental principles and procedures of business should be taught in the pharmacy school. The way to learn business methods is by business experience, and the place for it is the store, the same as in any other department of commerce."

3. "The pharmacy course is no place for so much botanical instruction as is contained in the Syllabus." "Boards of pharmacy do not ask questions upon it and should not do so." "Botany is a delightful study and I find great recreation in pursuing it in my spare time, but the pharmacist has no use for it and it should be deleted from the pharmacy course."

4. "An extreme amount of attention is given to pharmacognosy in your Syllabus. The retail pharmacist no longer sees crude drugs to any extent and is seeing less and less of them in any condition. Only a very few drugs should be studied and those only in a superficial way."

* Read before Section on Education and Legislation, A. Ph. A., Chicago meeting, 1918.

5. "Not one drug store in a hundred possesses a compound microscope and the average pharmacist will never look into one after leaving the school."

6. "There is no sense whatever in going so extensively into the subject of physiology. The retail pharmacist has no use for this knowledge and it is a waste of good time for the teacher to devote more than a few hours to it." This number of hours has been variously stated at from twenty-five to ten, this allowing for both lectures and recitations.

7. The study of the actions and the uses of drugs is said to be a complete work of supererogation. "If it has any permanent effect it is that of tending to encourage counter prescribing, which offends the physician and tends to widen the breach between physician and pharmacist."

8. One would suppose that the subject of chemistry in pharmacy teaching would be safe from the hands of the vandal, but this is very far from being true. We have been subjected to severe criticism for what is called "an attempt to make analytical chemists out of pharmacy clerks." Even pharmaceutical testing for purity of product has been roundly criticized, and that by successful, prominent and highly educated pharmacists, on the ground that "pharmacists very rarely test their drugs, and could not begin to do so if they desired, without employing a chemist for that special purpose." It is declared that this time should be devoted to teaching pharmacy proper.

The one subject that has been practically free from criticism is toxicology. There appears to be a unanimous agreement that knowledge of toxicology is a prime requisite, as a means of safety for the pharmacist and his clerks and customers. I ask particular attention to this fact as it has a special bearing on what follows.

In quoting the above views, I must not be understood as disparaging any one of them. There is truth and sound reasoning in all. On the other hand, there are considerations of a directly opposite nature, which have been wholly ignored by these critics and it is to be remembered that for each and every one of the subjects mentioned, there are claimants demanding that they should receive far more attention than is now given them. Regarding a number of them, there are claims that they respectively constitute the backbone of the pharmacy course, this word "backbone" having actually been employed in a number of arguments. Two facts are quite obvious: First, that they cannot all be backbones; second, that it is the usual thing for a specialist to think that his special subject is the backbone of the structure.

I can readily imagine the reflections with which different members of the audience have listened to the views quoted, and I think that I can single out most of those who entertain the respective opinions concerning them. In the case of each claim there are some who would like to cry out "Amen" in good old Methodist fashion, while others are curling the lip of contempt. The Syllabus maker can do neither. He is a referee and he must act as a judge. We should all be Syllabus makers. Even our most ardent specialists should place a curb upon their enthusiasm and endeavor to get the viewpoint of the other. Is it not time that we should systematize our work and formulate our methods of Syllabus revision? The only way to do this is to study the relations of each subject to each of the others and so treat it that it shall contribute the most possible to the value of the complete work. We must indeed go farther, and give some attention to the functions of the Syllabus course as the foundation for additional work in graduate and special courses. It is with this in mind that I submit for consideration certain facts upon which should be based definite principles and rules of action in Syllabus revision.

1. The pharmacy course of the present Syllabus is a very short and necessarily very incomplete course and must therefore be directed toward the accomplishment of a specific purpose, namely that of preparing ordinary clerks for pharmacy, prescription work being the main subject to be considered.

2. This course is not intended to prepare specialists in any part of the pharmaceutical field, and Syllabus makers should firmly resist any attempt by the teachers of specialties to pervert the Syllabus into an organ for turning out their music.

3. The relation of each subject to each other, as to explaining it and rendering its teaching most efficient in the production of a useful whole, should be more carefully studied than it is and should constitute the main guide in determining the extent to which that subject should be admitted into the course.

4. The course of the Syllabus is so highly inadequate, even for the one purpose that it has in view, that it must be assumed that all who enter the profession of pharmacy will go far beyond the Syllabus field, either in an additional school course, or through information subsequently gained, in one way or another.

5. For the reason just stated, the Syllabus must be regarded, in addition to the above characterization, as a preparation for the subsequent pursuit of specialties. This office of the Syllabus course cannot be too seriously considered, and Syllabus makers should proceed as carefully in fitting it for this service as for that of preparing for the pharmacy board examination.

Considering carefully all the inconsistencies, exaggerations and absurdities which abound so profusely in Syllabus criticism, it is clear that almost without exception they proceed from a failure to appreciate one or another of the principles which I have enunciated. The first requisite for Syllabus harmony is their recognition and observance.

It is because of this fact that I have insisted, as I still do, that the only way to make a good Syllabus is to begin our investigation at the top and to determine what kind of a foundation will be necessary for the superstructure. This is a very different process from that of beginning to build at the top, and it is the method that is employed in all architectural work.

Pursuing such a study based on the above principles, I have reached the following conclusions:

Considering the subject of toxicology as less subject to adverse criticism than others, let us see what preparatory instruction is necessary for its intelligent study. It involves a knowledge of what substances are poisonous and of the nature of their poisonous properties; also the relations between their medicinal actions and uses and possible poisoning by them. This necessarily involves some knowledge of diseased functions, which in turn involves a comparison between that and healthy functions. A study of healthy functions is physiology and no mere question and answer course in it will meet the above necessity. We can limit the field considerably but we must study that field quite closely and, above all, rationally. Physiology is called for in an additional direction. Every one now regards pharmacodynamics, miscalled "pharmacology" by many, as one of the important subjects of the advanced course. How is it possible for one to experiment on animals, as to the action of drugs, without a good knowledge of physiology, and of anatomy as well? I conclude that no reduction in the physiology of the present Syllabus can be made, unless medicinal action and toxicology are to be deleted, and that much more of it is necessary as a preparation for pharmacodynamics.

It appears equally obvious that the poisonous and medicinal constituents of drugs must be known from the chemical point of view before anything can be

done in studying their action. The organic chemistry of the Syllabus is at the very most no more than sufficient for this purpose. As to the inorganics, no argument seems called for to show that no portion of the inorganic chemistry of the Syllabus can be spared.

If this is true of chemistry as a basis for materia medica and toxicology study, what is to be said of it as a basis for pharmacy? Who can claim that any part of the chemistry now in the Syllabus is not essential as foundation for other work, without considering the subject of chemical analysis at all? Who can deny that another year should be allowed to permit of increased chemical instruction as a basis for advanced courses?

If our Syllabus chemistry is indispensable in preparing for materia medica, toxicology and pharmacy, what shall be said of our fragmentary and elementary physics course as a preparation for chemistry and pharmacognosy? Certainly, no portion of it can be spared!

To how great an extent is a knowledge of pharmacognosy necessary in the study of materia medica? None can deny that some crude and powdered drugs are regularly sold in our pharmacies, nor that others are used by practically all pharmacists in their own operations. A practical knowledge of such articles, and the ability to examine and test them by the use of both the simple and compound microscope, is a necessity of the most practical character. It is claimed that because such drugs form but a small portion of the complete lists of the Pharmacopoeia and Formulary, we should omit the study of the others from the Syllabus course; but consider for a moment what would be the opinion of the medical profession of a pharmacy course that did not include the study of all the articles that are included in the two books which constitute our legal standard. Imagine a profession ignorant of the very identity of the articles that are legally standardized as to both identity and purity! I would admit that many of the minor drugs might be but little studied, but I would never admit that any of them should be dismissed with no attention whatever.

What does the necessary preparation for the study of pharmacognosy include? Supposing that we studied thoroughly only twenty-five or fifty drugs; do they not contain all the vegetable tissues, and would they not include every portion of the plant? How then could any part of the structural and descriptive botany of the Syllabus, as to both outer and inner structure, be omitted, without crippling the student of pharmacognosy at a later period? The question as to whether boards of pharmacy ask questions has no relation whatever to the study of subjects fundamental to others on which they do ask questions. We never knew a board to ask questions in spelling, grammar or common arithmetic, but they assume that the candidate must know these subjects, and I think that any candidate found seriously deficient in them should be thrown out. It is the necessary and useful status of physics, physiology and botany as fundamentals that should control the decisions of Syllabus makers regarding their admission. The present botany of the Syllabus cannot be curtailed!

As to our pharmacy, it, if anything, should be regarded as the "backbone" of the Syllabus. Whether pharmacists actually make a preparation in their practical business or not, no man who does know how it is made should be regarded or licensed as a pharmacist. This is the department toward which all the others

herein considered are contributory, and we should have more rather than less of it.

It is my conviction, after most careful consideration of the subject, and investigations of all other views that could be obtained, that so long as our course remains of its present proportions, we cannot do better than to retain as compulsory all the subject matter now made so, and that we should include, properly indicated by brackets or otherwise, considerably more than is to be recommended for those schools in whose courses it can be incorporated; also, that the matter for a third year should be recommended as desirable and an effort made to lead up to the definite inclusion of such a third year's work.

In conclusion, I wish to say a few words regarding the duty of the Conference of Faculties of bringing to the attention of the high schools and of state authorities who pass judgment upon the work of such schools, the necessity of insisting more rigidly on better scholarship on the part of those who are graduated and promoted from one class to another. The habit of depending solely upon marks, good-naturedly and loosely allowed, results in supplying us with matriculants who must subsequently be taught by us the things which they are supposed to know before coming to us. Who has not had one, two and three year high school students, and even graduates, who are incompetent to perform or understand ordinary arithmetical problems, whose spelling and grammar are disgraceful and whose knowledge of Latin is limited to *Sic Semper Tyrannis* or *E. Pluribus Unum*?

In my opinion, the Conference of Faculties should investigate this subject and take suitable action.

DISCUSSIONS.

C. A. DYE: Doctor Rusby has made plain something that is fundamentally sound, something that I fear at some day may, if I am a good judge, interfere with the working of our prerequisite law. The question came up in Ohio when we were attempting to pass a prerequisite law, what could we adopt for a commercial course? We adopted the Pharmaceutical Syllabus of 1913, which includes some commercial work. Can the law make it compulsory so that a school must teach a certain amount of bookkeeping, a certain amount of advertising, and a certain amount of other business subjects? I am very much in favor of teaching commercial subjects, but I believe we ought to have in the Syllabus, as Dr. Rusby has said, a skeleton to build upon. Is the Pharmaceutical Syllabus compulsory for members of our Conference or does the Conference recommend it as a basis for pharmacy courses?

CHAIRMAN C. B. JORDAN: I understand it is to be used as a basis, that a certain number of hours be given by colleges to the subjects but they can go beyond these requirements. Dr. Rusby is a better authority.

H. H. RUSBY: You are right, but when the State Board adopts the Syllabus, as many boards have done, then it becomes compulsory.

CHAIRMAN C. B. JORDAN: I doubt very much if your State Board will insist that you teach exactly what is in the Syllabus.

C. A. DYE: They will demand that we teach the number of hours required by the Syllabus. When it comes to insisting on the number of hours on commercial subjects, I don't know what they may do. The Conference should adopt a standard for a pharmacy course and make it mandatory for its membership. That will give us something to work upon.

CHAIRMAN C. B. JORDAN: I take it that is what our Syllabus is as far as the number of hours is concerned.

C. A. DYE: That is mandatory, is it?

CHAIRMAN C. B. JORDAN: It is understood you will adopt the number of hours, but not necessarily the methods employed for teaching. Am I not right, Dr. Rusby?

H. H. RUSBY: That is perfectly right.

THE ADMINISTRATION OF PHARMACY PROBLEMS IN ILLINOIS.*

BY FRANCIS W. SHEPARDSON.¹

During the thirty-six years between 1881 and 1917, the enforcement of the Pharmacy Act in Illinois was in charge of the State Board of Pharmacy. On July 1, 1917, a new and somewhat revolutionary governmental plan became operative. The Pharmacy Board was abolished and all of its rights, powers and duties were vested in the Department of Registration and Education. This is one of the nine departments under what is known as "The Civil Administrative Code." Efficiency in the enforcement of the Pharmacy Act is, to a large degree, dependent upon powers granted by the code, and, as there has been some anxiety among leading representatives of Pharmacy in the country lest Illinois has taken a backward step, so far as the interests of the profession are concerned, it may not be out of place to consider for a short time this new, unusual and attractive administrative machinery for State government.

The present Constitution of the State of Illinois became operative in 1870. Although amendments have been made to it from time to time, its main provisions are substantially as they were first written. Nearly a half century, marked by astonishing changes, has elapsed. Illinois has become an imperial commonwealth. Its population has been trebled. Its problems have increased in complexity with the social, economic and industrial changes. The governmental result was the creation in Illinois from time to time of many special boards and commissions. These were designed primarily to relieve overburdened constitutional officers from tasks which it was physically impossible for them to perform. In practical experience these boards and commissions, eventually more than one hundred and thirty in number, tended to become semi-independent administrative factors in government, each with its own headquarters, officers and equipment. Almost inevitably conflicts of jurisdiction resulted and with them, naturally, much duplication of effort and expenditure.

This condition was recognized by many as undesirable. During a period of ten years there was agitation and discussion of the necessity for a change. An Efficiency and Economy Commission was appointed to provide a more perfect system of accounting and to combine and centralize duties. It was hoped that this study would lead to the rejection of much useless machinery and to a reorganization of the State government on modern business lines. The committee selected a trained political scientist as director, took the advice of a large number of officials and other citizens, held many hearings at which testimony was presented from almost every possible point of view. As a result of the investigations, there was published a report of 1,050 pages, everywhere recognized as one of the most remarkable documents in the history of State government in this country. But there was not much effort to make the work count toward definite reforms until the gubernatorial campaign of 1916. This made the occasion for placing the code project before the people for general consideration and discussion. Colonel Frank O. Lowden made its championship one of the prominent planks in his platform. Immediately after the people had chosen him to the high position of Gover-

* Read before Section on Education and Legislation, A. Ph. A., Chicago meeting, 1918.

¹ Director of Registration and Education.

nor, he took active measures to make the idea a reality. He had long believed in the possibility of conducting the affairs of a State on business principles. In his inaugural address he emphasized the importance of the administrative reform. He secured the coöperation of many members of the Legislature. He devoted long hours of study to the problem. Largely because of his earnest, personal advocacy, the Civil Administrative Code became law.

Its salient feature is the combination of the various governmental agencies. Nine departments are created, those of Finance, Agriculture, Labor, Mines and Minerals, Public Works and Buildings, Public Welfare, Public Health, Trade and Commerce, and of Registration and Education. For each of these departments there is an executive officer, called a Director, who is required to devote his entire time to the State work, this being an important new feature. He is provided with such subordinate assistants as are deemed necessary, the number varying in the different departments.

The Code has now been in operation for nearly fourteen months. Experience has amply justified those who so strongly urged the administrative reform. The new machinery has worked far more smoothly than its most sanguine supporters had hoped. It has won new friends steadily. Naturally there have been some difficulties. The period of operation is as yet too short to warrant final judgment. Deficits from previous years had to be paid from the receipts of this year, and imperative expenditures for long-needed repairs and improvements had to be met. The extraordinary conditions of the past year of war, such as the rise in the cost of commodities, the exceptional coal bills due to the severe winter, and the increase in postage and in railroad rates, made havoc of plans for retrenchment. In spite of all obstacles, however, the financial reports of the first year showed gratifying economies and substantial savings, along with greatly increased efficiency. All who are actively associated with Governor Lowden in the administration are confident that the Code will commend itself to the people of Illinois more and more, if its splendid features are given a chance for a fair trial under more normal conditions.

The Department of Finance is the keystone of the structure. Its work is certain to show substantial results. Its officers are giving the most painstaking scrutiny to all outlays, and many kinds of waste heretofore ignored are being effectively checked. They are studying the expenditures of every part of the State government with the purpose of preparing a detailed budget under which, for the first time, the State's business may be conducted in a systematic manner and with the same economy and fidelity demanded in all successful private or corporate undertakings.

It ought to be said that the centralization of administration under the Code is not complete because outside of its jurisdiction are the Civil Service Commission, a few remaining boards and the so-called constitutional offices, such as those of the Secretary of State, the Auditor of Public Accounts, the State Treasurer, the Superintendent of Public Instruction and the Regents of the State University. Should the campaign for the much-needed new constitution, adapted to the requirements of a great State such as Illinois has grown to be since 1870, be successful, one outcome of a constitutional convention might well be the inclusion of the duties of all these officers under similar proper departments. In actual practice,

however, there has been complete harmony between the Constitutional officers and the Code ones, so that the entire governmental machinery at Springfield has been working smoothly in the direction of exceptional administrative achievement.

Limitations of time do not permit further consideration of the Code in its entirety. It is a remarkable State document. It represents a notable advance in political science. The plan of organization of each department is extremely interesting. The distribution of powers among the departments, the internal workings of the departments and the great number and variety of the problems requiring administrative solution are alike attractive. A widespread interest in the Code has been awakened. Many letters of inquiry about it have been received. Several other States are giving serious consideration to the adoption of a similar plan of government. Anyone who cares to study the thirty-seven page booklet containing this epoch-marking legislative act will be well repaid.

The special concern of this association is in the administration of the Pharmacy Act of Illinois. In the reorganization scheme the licensure of pharmacists was placed in the Department of Registration and Education. Something about this Department, therefore, may be of interest to you.

While the double name, Registration and Education, seems to imply divided activity, a closer survey of the powers and duties of the Department shows that the thought of education is the dominant one. The word "Registration" relates to the administrative work associated with all of those professions and trades from whose members the State requires a license. The Department has jurisdiction over about a dozen different lines of endeavor, including those of the architects, barbers, chiropodists, dentists, embalmers, horseshoers, midwives, nurses, pharmacists, physicians, plumbers, structural engineers, and veterinarians. In its main office in Springfield, it has a staff of twenty-five persons, whose work is being so organized as to distribute responsibility most effectively and to secure accuracy, efficiency and promptness in administration. It maintains a Chicago office in the rooms formerly occupied by the Pharmacy Board.

The oversight of the licensing features of the activities of the Department is placed in the hands of an official called the Superintendent of Registration. He is charged with the arrangements for the necessary examinations as provided for in the Statutes, with the furnishing of adequate assistance for the examinations, with the notification of the successful candidates, with the keeping of the records and files of certification, and with the large amount of correspondence relating to licensure in the several lines. Inasmuch as all the laws which regulate licensure provide for the evaluation of credentials both of preliminary education and of professional training, the Division of Registration has among its duties the collection of the essential preliminary information about applicants and the investigation of their qualifications for examinations.

So, naturally, the Department must concern itself with the establishment of standards and the approval of both the schools themselves and of their courses of instruction. If the authority given by the Code and by the several practice acts should be invoked to its full degree, the power of the Department over schools of all grades and types would prove to be very great.

The word "Education" in the Department's title, therefore, does not imply

an entire change of thought from that of "Registration." It may, however, be taken to refer to certain types of higher education, which are carried on under State auspices, and which are professional, investigational, or strictly scientific in their nature. The five normal schools which, before, were controlled by separate boards of trustees, are now placed under the jurisdiction of the Department, with a single board of which the Director of Registration and Education is chairman. Grouped under the Department, also, are the three scientific surveys, located at Urbana, in connection with the State University, namely, the State Geological Survey, the State Water Survey, and the State Natural History Survey. For the study of the needs of these surveys and the development of their work, a special advisory board of scientists, called "The Board of Natural Resources and Conservation" and representing the different fields of research touched by the surveys, has been provided, the Director of the Department being its chairman. The Department has jurisdiction also over the State Museum, located at Springfield. For advice regarding its management there is a board composed of specialists representing the five different lines of activity with which the museum concerns itself, namely, botany, ethnology, zoölogy, manufacture, and museum administration.

In the selection of the members of these advisory and executive boards, the desire was to secure individuals of the highest character entirely regardless of political affiliation, whose names would carry weight whenever mentioned. The responses to invitations to serve the State in these non-salaried positions were most gratifying, many men of national reputation as specialists gladly lending their aid. The Department has been greatly strengthened in its administration by its ability to command the assistance and advice of men of such preëminence. The magnitude of its educational work, if expressed in terms of appropriations, which for the biennium exceed \$1,962,000, is such as to make it fairly comparable with similar special departments in a great American university.

The controlling idea behind the Civil Administrative Code has been stated to be combination and coördination with localization of authority under responsible individuals. There is no doubt that the personnel of the directorate is a most important element in the successful working out of the plan. If the Code lent itself to the machinery of political organization, and the selection of officers were made purely for partisan reasons, special fitness for a given task being made entirely subordinate, there might reasonably be fear for the result. The scope of the activities of the several departments, however, is so broad as not only to require the full-time service of individuals of recognized responsibility and position, but also to present to them for solution problems demanding the highest talent, and worthy of a strong man's best endeavor.

The Code specifically provides that the Director of Registration and Education, the Assistant Director, and the Superintendent of Registration shall not be affiliated with any college or school of medicine, pharmacy, dentistry, nursing, optometry, embalming, barbering, veterinary medicine and surgery, architecture or structural engineering, either as a teacher, officer or stockholder, nor shall they hold license or certificate to exercise or practice any of the professions, trades or occupations regulated.

This provision has caused some confusion, where the complete story of admin-

istration has not been told. It has been reported, for instance, that some pharmacists have thought that Illinois had taken the licensing of members of their profession out of the hands of those properly qualified by training to be the judges. A little reflection makes the reason for the restriction apparent. Absolute impartiality and exact justice are more likely to be secured where personal interest or possible professional jealousy is absent. In the working out of the Code plan there has been marked a notable change of attitude toward the law on the part of violators, whether intentional offenders or chance ones. The prospect of being prosecuted by a great Department of a State Government, the executive officers of which are not members of the profession involved, and whose main interest in the case is that of the enforcement of the law of the State, appears to be much more feared than was the danger of trouble with members of a board connected with the same profession. This has had many illustrations since last July. There is no doubt that every practice act of Illinois has become far more effective than it ever has been, because it now has behind it the machinery, the resources and the administrative power of a State Department. The interests of pharmacy in Illinois never were so well protected as they are under the Department of Registration and Education, even though the long-familiar term "State Board" has been thrown into the discard.

Another restriction of the Code provides that, whenever the several laws regulating professions, trades and occupations which are devolved upon the Department for administration, so require, certain enumerated functions and duties shall be exercised. These relate to standards of admission, curricula of schools and colleges, rules and regulations of examinations, conduct of examinations, the granting and revoking of licenses. It is definitely declared that, where the law of a profession, trade or occupation so requires, none of these enumerated functions and duties shall be exercised by the Department except upon the action and report in writing of persons designated from time to time by the Director to take such action and to make such report.

This restriction is a safeguard against personal inefficiency, arbitrariness, or corruption on the part of the Director. It also is designed to indicate clearly the pervading idea of the Code that, while the administrative duties of former State Boards have passed under the control of a department, the strictly professional features are properly safeguarded.

The Code provides for the pharmacists a committee of five persons, each of whom shall be a competent registered pharmacist in the State, and shall have had ten years' practical experience in the dispensing of physicians' prescriptions since such registration. The members of this committee, as of all similar ones in the Department, are appointed "from time to time." These words are important. There is no exact term of service for a member of an examining committee. The advantage of the limitation has already been shown in a number of cases, where trial revealed the fact that the individual selected for one profession or another was not well chosen. The objection to this plan is made, that there may be lack of continuity of policy from the professional point of view where there is uncertainty of tenure of committee members. This is obviated by the possibility of reappointment of those whose worth has been proved in actual experience. The danger in the personal appointment feature is the danger attending the entire

Code plan. An individual honored with selection as director of a department, or, for that matter, given any important task to perform anywhere, either will, or will not, rise to his responsibilities.

Another objection is urged that the word "Committee" does not carry with it as much honor as the word "Board," and is not understood in other States. The answer to this has already been given in the declaration that the interests of Pharmacy in Illinois never were so well protected as now and that other States, on becoming advised of the facts, will learn to honor the members of the committees chosen from the profession for the aid of the Department. And here it may be stated that a third safeguard of the Code declares that in making the designation of persons to act for the several professions, trades and occupations, the Director shall give due consideration to recommendations by members of the respective professions, trades and occupations, and by organizations therein.

Working under these general limitations, the Department has been successful in establishing friendly relationships with the best interests of every one of the professions and trades coming under its jurisdiction. In the selection of the first committees to work under the new plan, great care was taken. The Department officers desired a certain degree of continuity between the proceedings of the new Department and those of the old State Boards. They had an ambition to secure as advisers, groups of men whose names would command respect throughout the State, and who, in themselves, would be an assurance to all that under no circumstances could there be retrogression under the changed conditions of the Code. The practice acts have been enforced strictly. The examinations have been above suspicion. The committee members have worked faithfully and promptly, and generous commendations have come from many influential citizens who have expressed their opinion that the laws in which they have been specially interested have been interpreted and enforced in a highly satisfactory manner.

Several questions have been considered by the Department during the year which have general interest to the profession of pharmacy. One relates to the situation which confronts the drug trade owing to the effect of the draft. In many parts of the State it was practically impossible to find properly equipped individuals to serve as registered pharmacists or assistant pharmacists. As a result, proprietors oftentimes found themselves placed in embarrassing situations where they were not able to conform to that part of the State law which requires that the stores shall be at all times in charge of a competent registered pharmacist. After much thought and after conference with representative men of the retail drug business, the Department prepared a list of articles which, during certain specified hours of the day, might be sold by apprentices. This list was printed in attractive form and given wide circulation throughout the State. Great care was taken to safeguard the interests of the public by express prohibitions, the privileges extended not including the right to compound or fill physicians' prescriptions. The action of the Department was received with grateful appreciation by the trade, whose leading members agreed to aid in the prosecution of any individuals detected in attempting to take advantage of the special war-time emergency arrangement.

Another matter which was considered to some extent was the propriety of

the annual registration fee. In an address delivered before the Illinois State Pharmaceutical Association this subject was discussed as follows:

It has been brought to the attention of the Department that some members of the profession have questioned the value of the annual registration fee. Whoever takes that position surely is uninformed regarding the usefulness of this bit of administrative machinery. Through it the Department is enabled to keep in touch with legal practitioners. It has proved a great aid in keeping a correct list of addresses. The requirement of reporting once a year the location of each registered man is extremely important. The plan furnishes funds for the Department at slight cost to the individual pharmacist. The Department has no funds at all except those voted to it by the Legislature in return for fees received from the different professions, trades and occupations licensed. An attack upon the registration fee becomes an attack upon the pharmacy law. Surely the interests of the pharmacists naturally should lie in the direction of the maintenance of a proper force to keep the pharmacy law respected. Furthermore the willing payment of such a small fee provides a splendid argument against the imposition of a larger annual State license fee, quite easily possible in these days of regulation when governments everywhere are seeking for increased opportunities for raising needed funds. It makes a splendid protection for the pharmacist against such taxes to be able to say that for years he has been accustomed to the payment of such a registration fee in order to maintain the provisions of the pharmacy law. Incidentally it may be said here that the pharmacy registration fee has been the model upon which members of other professions and trades have based laws for the regulation of their own interests. The close connection maintained by the Department with legal practitioners through the contribution of these fees has enabled it, as its predecessor the State Board of Pharmacy was enabled, to enforce the pharmacy law against the illegal and unworthy.

The object of the law is to insure that the innocent public may not be imposed upon by unscrupulous people in the matter of drugs, medicines and poisons; that every drug store in the State shall be under the supervision of a duly qualified pharmacist; that none but competent, reliable and trained men shall be permitted to sell dangerous poisons and compound physicians' prescriptions; that proper labels are affixed to containers of deadly poisons; that substitution and adulteration are not permitted and that the standard of the profession is elevated. It is a measure not only to protect the lives and health of the people, but to protect the legitimate pharmacist in his profession. Were it not for the restraining influence of the pharmacy law, every pharmacist in the State would be at the complete mercy of unscrupulous competitors, seeking to impose upon the people in the matter of the sale of drugs, medicine and poisons. This would be a lowering of the high standard of the profession to the level of a strictly commercial basis, without regard to efficiency or knowledge of the science of drugs, medicines and poisons. Should the pharmacy law be stricken from the statute books of Illinois, it would not be long until there would be twice as many so-called pharmacies in the State as there are at the present time. No more effective weapon could be used against the law than the withdrawal of the registration fees which have furnished, and which must still furnish, the money by whose aid the law is enforced.

A suggestion has been made in some quarters, and it is left with you for discussion, that in addition to the registration fee of the pharmacists or assistant pharmacists, all drug stores themselves should be registered. The advantages of this proposition are clear. Such a regulation would tend to limit the competition of general merchants in many lines which ought to be restricted to drug stores. If a law provided that no stores for the sale of drugs could be opened in Illinois without a certificate from the Department of Registration and Education, there might be opportunity for important restrictions. For example, it might be possible to limit the number of drug stores within a given radius or, better yet, to provide that the total number of drug stores in a community should bear a definite proportion to the total population. It may be an open question whether the closing up of a good many drug stores and the employment of their pharmacists in other stores might not on the whole be a desirable thing for the profession. This undoubtedly would be true in many communities where the normal trade

has been so divided up as to make it difficult for an individual to prosper; whereas with one store where now there are two, both men interested might reap better financial returns.

One other problem in pharmacy has presented itself. The Department has been making careful studies of professional education. It has been advancing standards wherever it has had the power to do so. It has raised the preliminary requirement for admission to a school of pharmacy recognized by it to two years of high school work. It has done this much under the authority granted to it in two paragraphs of the Code. One of these empowers it to prescribe rules and regulations defining, for the respective professions, trades and occupations, what shall constitute a school, college or university, or department of a university, or other institutions, reputable and in good standing, and to determine the reputation and good standing of a school, college or university, or department of a university, or other institution, reputable and in good standing by reference to a compliance with such rules and regulations. Another authorizes it to establish a standard of preliminary education deemed requisite to admission to a school, college or university, and to require satisfactory proof of the enforcement of such standard by schools, colleges and universities.

But its officers, as laymen, have not found anything to make them particularly proud of the professional requirements in pharmacy. It is an open question whether people generally or the officers of pharmacy schools really think of pharmacy as a profession, so notably has the purely commercial element entered into the situation. The chances are that if a hundred individuals were asked whether they ever thought of a pharmacist as a professional man, or the drug store as the home of a professional man, their answers would be in the negative. If they were asked to describe a drug store, they would undoubtedly tell of a soda fountain, a cigar stand, a candy counter, and a place where brushes of various kinds, face lotions or soaps might be secured, a sort of department store on the corner with a big electrical sign. If the professional side were mentioned at all, in all likelihood it would have to be after further questioning. When the pharmacist, in such a situation, hurries quickly to state that it is necessary for him to run this type of a store in order to make a living, he only increases the doubt which arises as to whether, after all, he is a professional man or is merely a tradesman.

So when the question of the establishment of a Pharmacy Reserve Corps in the United States Army is considered, any inquiry runs almost immediately upon the obvious fact that the requirements to enter pharmacy in this country are not such as would warrant the business to be placed for a moment by the side of medicine or dentistry. When the report of the hearing before the Congressional Committee on Military Affairs is examined, it is discovered that one of the arguments advanced for this Pharmacy Corps is that other countries have a similar arrangement. But when the detailed statements of the requirements for pharmacy in those other countries are examined, it is at once apparent that there is no basis of comparison whatever between the thorough-going preparation required there and the slipshod methods pursued in the United States. Ninety out of a hundred of the same individuals above mentioned, if questioned about the qualifications for a pharmacist, would indicate a pleasant disposition, a cheerful greeting of customers and a good-natured tolerance of all sorts of neighborhood imposition, as

the important factors, utterly forgetful of the professional side: Has the man had the foundation principles in the shape of high school training; has he had the wider outlook furnished by a college course or part of it; has he had systematic and thorough instruction in a professional school of pharmacy? The answers are in the negative, and in the popular mind such qualifications are entirely unnecessary for pharmacy in America.

As has been said, the situation is worse when abundant evidence is available that officers and teachers in pharmacy schools, in many cases, lack the educational qualifications needed and have slight interest in advancing the standards of their profession.

The Department recognizes this situation and understands that in the minds of most of those concerned, the pharmacist is a tradesman and not a professional man, that the commercial element, both in school and in store, far exceeds the educational one in importance, and that any advance step which the Department may desire to take in pharmacy, along with forward movements in other professions, must be limited by the low standards which prevail so far as preliminary education, equipment of teachers and educational ideals of the institution are concerned. At the same time it will be glad to coöperate heartily in any step for the betterment of the situation and for aiding the development of a real profession of pharmacy and for the reclaiming of what ought to be a noble guild with high ideals from its present commercialized surroundings.

DISCUSSION.

In response to questions propounded Mr. F. W. Shepardson said:

The department has an appropriation for inspection. Two of the present inspectors were employed in that capacity under the old State Board of Pharmacy. The Attorney General of the State is prosecutor. The law requires that the administration officers shall not be connected with any of the trades or professions regulated by this enactment. Among the trades and professions concerned, and the members of which pay registration fees, are pharmacists, dentists, engineers, architects, barbers, horse-shoers. A campaign is now being made among medical men to secure their endorsement of the registration feature for physicians, and there is every reason to believe that the plan will be endorsed by them.

F. H. FREERICKS: Dr. Shepardson refers to the effort to establish a pharmaceutical corps in the Army, and gives as one of the reasons for failing in that that the pharmacists cannot lay claim to education to meet the educational requirements; that his standing is that of a merchant and not that of a professional man. I do not believe that the statement should go altogether unchallenged because, in my opinion, it places somewhat of a wrong construction upon the entire situation. Medicine to-day has that much-desired recognition in the Army, and we must take the man in medicine as he is, and by way of comparison we must take the pharmacist as he is to-day. I venture to say that when you take the fifty thousand pharmacists of this country and set them up against the hundred and fifty to two hundred thousand medical men in this country, you will find proportionately as many educated men in pharmacy as you do in medicine. I think it is unfair to say that pharmacy should not be recognized for the reason assigned. I do not believe it is right that there should go out of this organization and with the approval of this Association an expression on our own part that we are not as well qualified for our work, that the pharmacists as a whole in this country are not as deserving of the recognition sought, as are the medical men for the recognition they have deservedly gained.

R. A. LYMAN: I fear the words of Mr. Freericks are apt to stir up feeling between medical men and pharmacists: we ought to have this because medical men have such and such. We ought to forget that; it is entirely immaterial. Dr. Shepardson hit the nail on the head when he said that teachers in pharmacy in the colleges of America have a very low ideal of the practice of pharmacy as a profession. I think there is where the real trouble is. I have always main-

tained in our meetings, as you know, that the schools of America and its educators set the pace for what the public think about us, and we have to look to pharmaceutical educators to elevate the ideals or ideas that the layman has of pharmacy as a profession. I think that Dr. Shepardson is exactly right when he places the blame upon pharmaceutical educators, and I for one, representing at least a certain type of educators of America, thank him for his courage in coming here and making that statement before us. He is a man from the outside and that expression of opinion from Illinois will do the pharmaceutical educators of America a whole lot of good, and indirectly be responsible for improving our professional standing.

F. J. WULLING: Dr. Lyman's statement that "pharmaceutical educators are responsible for conditions" should be modified somewhat. If he would say a faction of pharmaceutical educators are to blame I would agree entirely. There is another faction of pharmaceutical educators who feel that they have been working toward these higher aims and ideals against great odds, and they have accomplished something in the face of those odds. There are schools and practicing pharmacists at the present day who are equal to the best schools in medicine and practitioners of medicine.

I arose to say this particularly: That we are all thinking along the same lines, and those are upward lines. President Kraemer, of the Faculties, has made a recommendation which is exactly in line with this. Others made similar recommendations last year and three or four years ago, namely, that the present condition in pharmacy be recognized, that there are reputable and well-trained pharmacists, educated men who can meet representatives of other callings. The situation has been recognized in the recommendation for two classes of pharmacists or two classes of drug stores—one the pharmacist practitioner and the other a drug store—and that the colleges also arrange themselves accordingly. Possibly there would be no objection to the same college having two courses; I don't know. The fact is, we are working practically along the same line with the idea suggested by Dr. Shepardson.

Another thing: Many years ago a large number of pharmacists said that unless we pharmacists as a whole, the body pharmaceutical, puts its house in order, somebody else will do it for us. Here we have an instance of somebody stepping in who is not a pharmacist. I am not passing judgment upon the commission; many things Dr. Shepardson said I heartily agree with; in fact, he has endorsed my sentiments in many respects. This is only one instance of an outside agent coming in to regulate pharmacists and to say what they are to do and enforce what they are to do. We have let that slip away from us.

BOLSHEVISM IN PHARMACY.*

BY CHARLES H. LAWALL.

Words and phrases have associated concepts which may differ so greatly in different individuals that when these individuals enter into a discussion they are often talking about things which are diametrically opposed. "Pharmaceutical education," "pharmaceutical practice" and "pharmaceutical progress" are examples of phrases, often the subject of controversy in which there is no common ground of understanding. Indeed it is often true that these concepts are changed in the individual under the influence of time and environment. No definition of a liberal education has ever been given which surpasses the following, by Huxley, which is quoted to show how comprehensive and detailed a definition sometimes becomes.

"That man, I think, has had a liberal education who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold, logic engine, with all its parts of equal strength, and in smooth working order; ready like a steam engine to be turned on any kind of work, and spin the gossamers

* Read at the November meeting of the Philadelphia Branch of the A. Ph. A.

as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of nature and of the laws of her operations; one, who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience; who has learned to love all beauty, whether of nature or of art, to hate all vileness, and to respect others as himself."

When we come to the question of pharmaceutical education or any other kind of scientific or professional education, however, we are dealing with a more restricted and specialized field. Without attempting to inflict upon you an arbitrary definition of this kind of education, I will state that I believe *that man is best educated who is most useful to his community and to his profession or trade*, whatever it may be. For further explanation of my personal views on some of these questions, I will take the unusual liberty of referring you to two previous articles in which I have expressed them. One is the address of the chairman of the Section on Education and Legislation of the A. Ph. A., published in the Proceedings of 1910, page 605. The other is an article entitled "When Is an Education not an Education?" JOUR. A. PH. A., 1915, p. 176. The views expressed on fundamentals in these two articles have not materially changed during the passage of time, but conditions have recently arisen which seem to call for further expression of opinion on certain phases of the situation.

There seems to be at present a peculiar tendency to throw discredit on commercialism of any kind in connection with pharmacy. The reason for this is seen every time one looks into the windows or sees the advertisements of a certain type of drug store, but why the large number of high-minded, ethical pharmacists, who are practicing their profession with the respect and support of leading members of the medical profession in their communities, should on that account be held up to scorn, is hard to understand.

We are led to believe that because Mr. X. or Mr. Y. makes a larger proportion of his gross profits from the sale of merchandise other than drugs, pharmacy is going to the dogs. Why should any stigma attach to a man because he is a good merchandiser? This double responsibility of such an individual to the community has been well expressed by Dr. Jacob Diner, as follows:

"On one side we must have the professionally trained man; on the other we must prepare the same man to be commercially able to avail himself of every honest, legitimate means for the financial advancement of his business."

The attempt to classify pharmacists according to professional attainments has been recurrent for centuries past. One of the first recorded legal enactments affecting pharmacy was that of Frederick II, of Sicily, in 1233 A. D. This law mentions "*apotheca*" in the sense of warehouses where drugs were stored; compounders of medicines were called "*confectionarii*," and sellers of simple medicines were called "*stationarii*." As throwing light on the subject of "side-lines," the following will be found of interest:

In the 16th century the Guild of Nuremburg druggists presented a memorial of grievances in which, among others, are the following complaints:

1. The sale of all confections has now fallen into the hands of the sugar dealer.

2. Counter sales (of spices) are now made by all of the large spice and cheap corner grocery shops, thus robbing the druggist of a source of profit that he is justly entitled to.

3. The sale of sundries, such as sealing wax, fumigating pastilles, paper, ink and pens is now taking place in common huckster shops.

4. The sugar dealers are not only selling confections but also all kinds of fruit juices and all such preserves as do not deteriorate in the course of a year.

These same Nuremburg pharmacists stated that "many of our brethren have matriculated at universities, some have attended academies, and others have even graduated as doctors. We consider that our profession is not a trade but is in reality a free art."

In the 18th century the pharmacists were held in derision for their claim to professional recognition, by Professor Hoffmann, one of the early professors of the University of Halle, who stated their scope of knowledge in the following way:

"The apothecary should know that an acid and an alkali, when brought into contact, will effervesce. It will suffice if he but know the effect although he may be ignorant of the cause."

Business or commercial ability is fundamentally responsible for success in any profession or for the continued existence of educational institutions, even those engaged in the most academic and intellectual lines of work. All rivalry or competition is in reality commercial rivalry or competition, and whether this is carried on fairly or unfairly depends upon the underlying principles of honesty, fair dealing and ethics possessed by the participants.

What are the primary objects of a college education in pharmacy? Is it to produce mental contortionists and star performers who can assimilate syllabi and transform the pabulum into passing marks for registration examinations, or is it to produce worthy, helpful members of the community? If we decide that the latter is preferable, the means must be studied and methods applied which will tend to produce the desired results. I say "tend to," for no idealistic attainment of results will ever be possible. We must work toward a desired end, whether we at first reach it or not.

We must discourage empiricism in scientific work and encourage an interest in and thoroughness of training in principles. Efficiency, success, service, are all factors of value and importance. We must encourage and teach the student to become accurate in his work and in his habits of thought, and if our work is conscientious and thorough, and the student is receptive and interested, we shall have contributed to the community an individual who will be a credit to his work and to his college and who will be a safe and ethical dispenser of extemporaneous medicines, whether they constitute five or fifty percent of his gross sales.

A certain number of the members of any group of young men and women have a natural aptitude and a greater liking for scientific work than for general drug store work. These should be given the necessary post-graduate instruction to enable them to become the neighborhood analysts and bacteriologists, to act as clinical advisers to the physicians of their communities, and should be trained to be helpful even along the broader lines of sanitation and hygiene, so as to give

aid to local health officers when needed. The preliminary education required for the best results should be a minimum of four years of high school work. This requirement should be enacted into the State laws, as has recently been done in the State of Illinois.

Any college of pharmacy with the proper equipment and instructional staff should be able to, and should have the right to teach both of such classes of pharmacists in such numbers as present themselves with properly accredited entrance credentials. That pharmacy is gradually separating into two distinct classes no one will deny. That it has been predicted for years, everybody knows. That it can be brought about over night by resolution, agreement or law, is impossible. Such views savor of Bolshevism, a specious, plausible, irresponsible type of propaganda which has been worrying statesmen for several years, but has not previously appeared in educational discussions.

To accomplish these changes needs more than the fiat of any individual or group of individuals. We cannot effect reform by resolution any more than we can decide scientific questions by a majority vote. Diplomas, degrees and certificates are but "scraps of paper" unless upheld by legislative enactment. Reformers frequently forget that laws are primarily for the protection of the public and not for the development of theories which are impossible to put into practice.

It is in the matter of legislation that we find our greatest stumbling block to rapid progress. Our "pre-requisite" legislation is too recent and not widespread enough as yet, to make such radical changes as would be necessary to effect an immediate sharp separation between drug merchandisers and professional pharmacists, desirable as it may seem in some extreme instances. Economic factors would be ignored, State laws would need to be changed, boards of pharmacy would have to cast aside the traditions and practices of a generation. Doctor Beal has truly said, "Compromise is the price of progress," and with this thought in mind, we should take pains to see that legal restrictions and educational qualifications should be coördinated and drawn closer together, not forced apart.

Looking back, therefore, at the whole subject, it is clear to my mind that any educational institution should be proud of the opportunity of training both pharmacists and druggists, if by druggists is meant the large number of self-sacrificing individuals who, during the recent influenza epidemic, closed everything but their prescription departments so as to devote their entire attention to the pharmaceutical needs of the communities in which they practiced.

The object of an education is that a man may learn to benefit himself by serving others, one who exemplifies the words applied by our own Dean Remington to a noble deceased pharmacist:

"A man whose soul is pure and strong,
Whose sword is bright and keen;
Who knows the splendor of the fight
And what its issues mean."

PERCENTAGE SOLUTIONS AND ALLIGATION.*

BY H. L. THOMPSON.

There is no one subject which receives such a great amount of discussion as the prescriptions calling for such and such a percent of this or that, and how to go about filling them when one has certain materials on hand.

It would be a very simple matter, if the specifications after percent, $\%$, were written w/w, w/v, or v/v as the case may be. There seems to be little understanding upon these matters, between the physicians who prescribe, and the pharmacists who fill and dispense such prescriptions.

$\%$ w/w, percent weight to weight, percent absolute, is a percentage based entirely on the weight of the finished product.

$\%$ w/v, percent weight to volume or percentage concentration, is a percentage by weight based on the volume of the finished product.

$\%$ v/v, percent volume to volume, is based as a percent by volume on the volume of the finished product.

In all three cases, the percentage solutions are approximately alike for weak percentage solutions, and if water solutions, but not exactly so. This discrepancy is still more pronounced in stronger percentage solutions, especially saturated solutions, and when solvents other than water are used.

For example, consider in the metric system the following problem of a 5% solution of KI, potassium iodide, in water, syrup and alcohol, 5% w/w, 5% w/v, and their possibilities. And for a liquid 5% v/v.

PERCENT, ABSOLUTE.—PERCENT, BY WEIGHT. W/W.

This method is the most accurate, and in the use of the metric system is very simple. It represents Gm. of substance in 100 Gm. of finished product, or parts per 100.

A 5% w/w solution would contain 5 Gm. of substance in 100 Gm. of solution. A 10% solution would contain 10 Gm. in 100 Gm.

There are four ways of making these, two making up to 100, and two having 100 Gm. of solvent.

Thus consider a 5% solution of KI.

| | | | |
|-----------------|-----------------|---------|-----------------|
| To make it take | 5 Gm. of KI | or take | 5 Gm. of KI |
| add | 95 Gm. of water | add | 95 mls of water |

| | | | |
|-------|---------------------|-------|---------------------|
| total | 100 Gm. of solution | total | 100 Gm. of solution |
|-------|---------------------|-------|---------------------|

If the specific gravity of the solvent is heavier than water, as syrup, sp. gr. 1.313,

| | | | |
|------|-----------------|---------|---------------------|
| take | 5 Gm. of KI | or take | 5 Gm. of KI |
| add | 95 Gm. of syrup | add | —72.35 mls of syrup |

| | | | |
|-------|---------------------|-------|---------------------|
| total | 100 Gm. of solution | total | 100 Gm. of solution |
|-------|---------------------|-------|---------------------|

95 Gm. \div 1.313 = 72.35 mls of syrup.

If the specific gravity is lighter than water, as alcohol, sp. gr. 0.816,

| | | | |
|------|-------------------|---------|----------------------|
| take | 5 Gm. of KI | or take | 5 Gm. of KI |
| add | 95 Gm. of alcohol | add | 116.4 mls of alcohol |

| | | | |
|-------|---------------------|-------|---------------------|
| total | 100 Gm. of solution | total | 100 Gm. of solution |
|-------|---------------------|-------|---------------------|

95 Gm. \div 0.816 = 116.4 mls of alcohol.

In all these cases the volumes are not 100 mls but vary inversely as the specific gravity of the solvent. With the water solution it is practically about 100 mls, with the syrup about 75 mls, and with the alcohol about 120 mls.

* Contributed to Section on Practical Pharmacy and Dispensing, A. Ph. A., Chicago meeting, 1918.

If one takes 100 mls or 100 Gm. of water and desires to make a 5% sol. by addition of KI, proceed as follows:

$$\begin{aligned} 100\% - 5\% &= 95\% = 100 \text{ Gm. of water} \\ 1\% &= 1.053 + 95 = 1.053 \\ 100\% &= 105.3 \text{ Gm. of solution} \\ 5\% &= 105.3 - 100 = 5.3 \text{ Gm. of KI} \end{aligned}$$

Therefore add 5.3 Gm. of KI to 100 Gm. of water to make a 5% solution.

If syrup, to 100 Gm. add 5.3 Gm. of KI,

or use $100 \div 0.313 = 76.15$ mls of syrup, and add 5.3 Gm. of KI,

If alcohol, to 100 Gm. add 5.3 Gm. of KI,

or use $100 \div 0.816 = 122.6$ mls of alcohol and add 5.3 Gm. of KI.

In case 100 mls of syrup are used and a 5% w/w solution is desired, $100 \times 1.313 = 131.3$ Gm. of syrup.

$$\begin{aligned} 100\% - 5\% &= 95\% = 131.3 \text{ Gm. of syrup} \\ 1\% &= 131.3 \div 95 = 1.382 \\ 100\% &= 138.2 \text{ Gm. of soln.} \\ 5\% &= 138.2 - 131.3 = 6.9 \text{ Gm. of KI to be added.} \end{aligned}$$

Therefore add 6.9 Gm. KI to 100 mls of syrup to make it 5% w/w.

In case 100 mls of alcohol are used and a 5% w/w solution is desired, $100 \times 0.816 = 81.6$ Gm. of alcohol.

$$\begin{aligned} 100\% - 5\% &= 95\% = 81.6 \text{ Gm. of alcohol} \\ 1\% &= 81.6 \div 95 = 0.859 \\ 100\% &= 85.9 \text{ Gm. of soln.} \\ 5\% &= 85.9 - 81.6 = 4.3 \text{ Gm. of KI to be added.} \end{aligned}$$

Therefore add 4.3 Gm. of KI to 100 mls of alcohol to make it 5% w/w.

In all the above cases we have the absolute percentage, parts in grammes per 100 grammes, everything based on weight, even if the solvents are measured.

If the other systems of weights or measures are used, I prefer to change them to the metric equivalents, and then go back, for more accurate and scientific work is done in the metric system than any other system, as I will attempt to show later. In practice, I usually use the metric system exclusively.

PERCENTAGE CONCENTRATION. PERCENT WEIGHT TO VOLUME. % w/v.

By this method is understood to mean Gm. per 100 mls making solutions up to 100 mls. Let us likewise consider the 5% w/v KI solution.

Proceed as follows: if water is the solvent,

take 5 Gm. of KI
add water enough to make 100 mls.

If syrup, sp. gr. 1.313, disregard the sp. gr.,

take 5 Gm. of KI
add syrup enough to make 100 mls.

If alcohol, sp. gr. 0.816, likewise disregard the sp. gr.,

take 5 Gm. of KI
add alcohol enough to make 100 mls.

This method of making percentage solutions is preferred by physicians and pharmacists because of the teaspoonful doses, solids being weighed and liquids measured.

Unless the specific gravity of the finished product of the different percentage solutions and the solvents is known, it is impossible to base percentage concentration % w/v upon a given 100 mls of solvent and the desired substance to it.

The above three cases do not take into account the specific gravity of the solvent; only that sufficient diluent is added to the weighed substance to make it up to 100 mls.

VOLUME PERCENTAGE. PERCENT BY VOLUME. % v/v.

By this is meant mils per 100 mils of solution.

To make a 5% v/v spirit of chloroform, take 5 mils of chloroform and add 95 mils of alcohol.

To make a 10% spirit of a volatile oil, from 100 mils of solvent,

$$100\% - 10\% = 90\% = 100 \text{ mils of alcohol}$$

$$100\% = 100 \div 0.90 = 111.1$$

$$111.1 - 100 = 11.1 \text{ mils of volatile oil to be used.}$$

This method is usually used by physicians and pharmacists, when all liquids are measured, regardless of their specific gravity.

In the above discussion the mil of water is practically considered as weighing 1 Gm., and the rule mils \times sp. gr. = Gm. is usually considered the best for temperatures from 15° C. to 25° C.

Again, I repeat, that where real precise and accurate work is desired use the metric system, and make percentage solutions weight to weight.

From the study of the above problems, it is apparent how complicated it must be to use other systems as the apothecary fluidounce, and avoirdupois weights, when making up percentage solutions, because of another discrepancy in the understanding as to whether 1 fluidounce of water is to be taken as weighing 456.3, 455.7, 454.6 at 4° C., 15° C., or 25° C. Practically, they say no harm is done, yet is the solution really accurate?

It has been my experience to fill prescriptions for several physicians where percentage solutions were to be based on weight, but the majority of the physicians desire the percentage solutions to be based by weight to volume for solids, and volume to volume for liquids. One physician stated that when I filled a prescription of his calling for a 4% solution of silver nitrate that each fluidounce should contain 20 grains of silver nitrate, basing his calculations on the fluidounce as equal to 500 minims.

The old adage "a pint is a pint the world around" should be forgotten. Too many pharmacists and physicians confuse ounce apothecary and fluidounce apothecary, and then complicate it still more by adding the % sign, when they desire percentage solutions.

I have had the peculiar experience of seeing a pharmacist when filling a prescription calling for 1 fluidounce of a saturated solution of potassium iodide base it on the weight of an ounce, saying one fluidounce weighs 437.5 grains, and then using the avoirdupois drachm of 27.34 grains as drachms of 60 grains.

Thus 1 part of KI is soluble in 0.7 part of water and equals 1.7 parts of solution. Then 1.7 parts = 437.5, 1 part = $1/1.7$ of 437.5 = 257.4 grains. $257.4 \div 60 = 4.289$, or 4.3 drachms. Then in filling the prescription calling for the one ounce of saturated solution of KI use 4 drachms avoirdupois and 10 grains (total 130 grains) and add water to make one fluidounce, and actually dispensing it as a saturated solution. If a pharmacist performs such a blunder as above, whether ignorantly or on purpose, it is no wonder that physicians, surgeons, dentists, and even veterinarians, desiring to get results from the medicines they prescribe, lose faith in the profession of pharmacy, and estimate it of little or no value, and really doubt our accuracy in the art of dispensing, when the same is performed by the pharmacists that do know.

Is there no remedy for this? Can not physicians, dentists, veterinarians, and pharmacists come to a better understanding and adopt a certain method of writing and filling percentage prescriptions?

As a suggestion to a possible solution of this problem, the percent absolute, $\frac{\text{Gm.}}{\text{Cc.}}$ w/w, is the most accurate one, and will cover all desired cases of amounts. It is used exclusively in Continental Europe.

But in Great Britain and the United States solids are preferred to be weighed and liquids measured. Therefore, would it not be a good plan to adopt the system required and ordered in the departments of Army and Navy, Marine Hospital Service, and Public Health, that in their work to use the metric system exclusively, expressing solids in grammes and liquids in cubic centimeters. If this rule of weighing solids and measuring liquids in the metric system exclusively were adopted, then we could say that any percentage solution called for would mean $\frac{\text{Gm.}}{\text{Cc.}}$ w/v in the case of solids, and $\frac{\text{Gm.}}{\text{Cc.}}$ v/v in the case of liquids, the solids being weighed, the liquids being measured, and the whole made up to the desired finished volume.

And lastly, this method would easily give the dose per teaspoonful, which is really of great importance to the physician.

Thus, 120 Cc. of a 7.5% solution of ammonium chloride, NH_4Cl , in syrup would contain $120 \times 0.075 = 9.0$ Gm. of NH_4Cl , and enough syrup added to make 120 Cc. or mls. One teaspoonful = 4 Cc., then $120 \div 4 = 30$ teaspoonfuls. $9 \div 30 = 0.3$ Gm. of NH_4Cl , the dose per teaspoonful.

A CORRECTION TO BE APPLIED TO PERCENTAGE SOLUTIONS.

In the problems, the solids and the liquids were assumed to be 100% pure. If they are not the use of alligation simplifies the process. However, the problems can be solved by percentage and ratio and proportion.

If volumes contract it is preferable to weigh the substances.

Rule. Divide the amount figured on the 100% pure basis by the real percentage expressed in its decimal fraction and use this amount of substance. Then make up to the required number of Gm. or mls, as the case may be for $\frac{\text{Gm.}}{\text{Cc.}}$ w/w, $\frac{\text{Gm.}}{\text{Cc.}}$ w/v, or $\frac{\text{Gm.}}{\text{Cc.}}$ v/v.

Or apply Alligation, Rule III (which see).

Thus, how much 95% sulphuric acid will be necessary to make 100 Gm. of 10% acid?

$$10\% \text{ of } 100 \text{ Gm.} = 10 \text{ Gm.}$$

$$10 \text{ Gm.} \div 0.95 = 10.53 \text{ Gm. of } \text{H}_2\text{SO}_4$$

$$100 - 10.53 = 89.47 \text{ Gm. of water if } 10\% \text{ w/w,}$$

or make up to 100 mls if 10% w/v is desired.

$$95 \text{ } 10 \text{ } x \text{ or } 10 \text{ } 52$$

$$19 : 2 :: 100 : x \quad x = 10.52$$

or 10

$$\begin{array}{r} 0.85 \text{ } y \text{ or } 89.49 \\ \hline \end{array}$$

$$19 : 17 :: 100 : y \quad y = 89.49$$

$$\begin{array}{r} 95 \text{ } z \quad \quad 100 \\ \hline \end{array}$$

If a stated amount of diluent is given, proceed likewise. Thus how much liquefied phenol 87% must be added to 500 mls of water to make a 5% solution?

$$500 \times 0.95 = 526.3 \text{ mls of finished product}$$

$$526.3 \times 0.05 = 26.315 \text{ mls of liquefied phenol}$$

$$526.3 - 26.32 = 499.98 \text{ or } 500 \text{ mls}$$

$$87 \text{ } 5 \text{ } x \quad 26.3$$

$$82 : 5 :: 500 : x \quad x = 26.3$$

or 5

$$\begin{array}{r} 0.82 \text{ } y \quad 500.0 \\ \hline \end{array}$$

$$\begin{array}{r} 87 \text{ } z \quad 526.3 \\ \hline \end{array}$$

See alligation.

Under corrections to be applied to percentage solutions, mention was made of mixtures of different percentages. The six following rules of alligation will cover all such cases, whether solids or liquids, provided percentages are based on absolute percent, by weight.

Alligation is the short cut of the rule of three or ratio and proportion. In counter distinction to objections, raised, if those mixtures, solids or liquids are mixed by weight, the best and most reliable method, the allegation is very simple and exact.

ALLIGATION MEDIAL.

RULE I.—Given various amounts (two or more) of ingredients with their corresponding values; to find the value of the result when these are mixed, proceed as follows:

1. Multiply the amount of each ingredient by its value;
2. Add the values of these products;
3. Add the amounts of ingredients, or parts;
4. Divide the sum of the products by the sum of the amounts of the ingredients or the sum of the parts, as the case may be.
5. The quotient is the value of the mixture.

NOTE.—This rule is always used to prove Rules II, III, IV, V, and VI.

Example I:

Given 20 Gm. of 80%_v, 20 Gm. of 36%_v, 480 Gm. of 6%_v acetic acids. What will be the value of the mixture of these acids?

$$\begin{array}{r}
 80 \times 20 = 1600 \\
 36 \times 20 = 720 \\
 6 \times 480 = 2880 \\
 \hline
 520 \quad) \quad 5200(10 \\
 \underline{5200} \\
 \hline
 \end{array}$$

ALLIGATION ALTERNATE. USED IN ALL THE REMAINING RULES.

RULE II.—Given the values of two ingredients; to find the parts to be used of each ingredient, one of which is higher and the other of which is lower than the desired intermediate value, proceed as follows:

1. Draw a vertical line.
 (e) To the left of this line, place the value desired;
 (b) To the right of it, the values of the ingredients;
2. The value of the stronger ingredient minus the desired value equals parts to be used of the weaker ingredient.
3. The desired value minus the value of the weaker ingredient equals parts to be used of the stronger ingredient.
4. Total the parts.
5. Simplify the parts, and the total, so that the ratio and proportion can be easily applied.
6. Prove results by Rule I.

Example II:

In what proportions may 95%_v and 20%_v sulphuric acids be mixed to make 50%_v sulphuric acid?

$$\begin{array}{r}
 95 \quad 39 \quad \text{or} \quad 6 \quad \text{or} \quad 2 \quad . \quad \text{Proof} \quad 95 \times 2 = 190 \\
 50 \quad \bullet \quad 20 \quad 45 \quad \text{or} \quad 9 \quad \text{or} \quad 3 \quad \quad \quad 20 \times 3 = 60 \\
 \hline \quad \quad \quad 75 \quad 15 \quad \quad \quad 5 \quad \quad \quad 5 \quad) \quad 250 \quad (50
 \end{array}$$

RULE III.—To find the amounts of stronger, weaker or total, when one of these is given, when the desired intermediate value is given, and the values of the stronger and the weaker ingredients are known, proceed as follows:

1. Apply Rule II.
2. Opposite parts, place x, y, z.

x = parts of stronger ingredient.

y = parts of weaker ingredient.

z = total parts in mixture.

3. Place the known amount opposite its proper value, and part in place of x , y , or z , as the case may be.

4. Then find the other unknowns by ratio and proportion.

5. Prove by Rule I.

Example IIIa:

Given 200 Gm. of 30% HCl. How much water must be used to make it 10%, and what is the total amount of the finished product?

$$\begin{array}{rcllcl} 30 & 10 & 1 & x & = & 200 \\ 10 & & & & & \end{array}$$

$$\begin{array}{rcllcl} 0 & 20 & 2 & y & = & 400 \\ \hline & 30 & 3 & z & = & 600 \end{array}$$

$$\text{Proof: } 30 \times 200 = 6000$$

$$\begin{array}{rcllcl} 0 & \times & 400 & = & 0 \\ \hline & & 600 &) & 6000 & (10 \\ & & & & 6000 & \\ \hline & & & & & \end{array}$$

$$1 : 2 :: 200 : y \text{ or } y = 400.$$

Therefore to 200 Gm. of 30% add 400 Gm. of water to make 600 Gm. 10%.

Example IIIb:

Given 500 Gm. of water. How much sulphuric acid 75% must be added to it to make 25%, and what is the weight of the finished product?

$$\begin{array}{rcllcl} 75 & 25 & 1 & x & = & 250 \\ 25 & & & & & \end{array}$$

$$\begin{array}{rcllcl} 0 & 50 & 2 & y & = & 500 \\ \hline & 75 & 3 & z & = & 750 \end{array}$$

$$\text{Proof: } 75 \times 250 = 18750$$

$$\begin{array}{rcllcl} 0 & \times & 500 & = & 0 \\ \hline & & 750 &) & 18750 & (25 \\ & & & & 1500 & \\ \hline & & & & 3750 & \\ & & & & 3750 & \\ \hline & & & & & \end{array}$$

$$2 : 1 :: 500 : x \text{ or } x = 250.$$

Therefore, to 500 Gm. of water add 250 Gm. of 75% acid to make 10% acid, and the finished product weighs 750 Gm.

Example IIIc:

In what proportions must 28% ammonia water and water be mixed to make 560 Gm. of 10% ammonia water?

$$\begin{array}{rcllcl} 28 & 10 & 5 & x & = & 200 \\ 10 & & & & & \end{array}$$

$$\begin{array}{rcllcl} 0 & 18 & 9 & y & = & 360 \\ \hline & 28 & 14 & z & = & 560 \end{array}$$

$$\text{Proof: } 28 \times 200 = 5600$$

$$\begin{array}{rcllcl} 0 & \times & 360 & = & 0 \\ \hline & & 560 &) & 5600 & (10 \\ & & & & 5600 & \\ \hline & & & & & \end{array}$$

$$14 : 5 :: 560 : x \text{ or } x = 200.$$

$$z - x = y, \text{ or } y = 360.$$

Therefore, 200 Gm. of ammonia water 28% and 360 Gm. of water must be mixed together to make 560 Gm. of 10% ammonia water.

RULE IV.—Given the desired total amount of ingredients and its value, and the amount of one ingredient and its value, to find the amount of the other ingredient and its value to produce the above total amount and its value, proceed as follows:

1. Multiply the desired total amount by its value;

2. Multiply the amount of the ingredient given by its value;

3. The product of the total amount by its value minus the product of the amount of the given ingredient by its value, equals the product of the amount of the other ingredient and its value.

4. The total amount minus the amount given equals the amount of other ingredient needed.

5. The product of the other ingredient and its value divided by the amount of other ingredient needed equals the needed value of the other ingredient.

6. Prove by Rule I.

Example IV:

How many grammes of belladonna and of what value, must be added to 50 Gm. of 1.2% belladonna to make 500 Gm. of 0.3% belladonna?

$$0.3 \times 500 = 150.0$$

$$1.2 \times 50 = 60.0$$

$$\begin{array}{r} \text{x} \quad) \quad 450 = 90.0 \end{array}$$

$$\text{Proof: } 1.2 \times 50 = 60.0$$

$$0.2 \times 450 = 90.0$$

$$\begin{array}{r} 500 \quad) \quad 150.0 \quad (0.3 \\ \underline{150.0} \end{array}$$

$$x = 90.0 \div 450 = 0.2\%$$

Therefore, 90 Gm. of 0.2% belladonna must be added.

RULE V.—Extension of Rule II, where there are more than two ingredients.

1. (a) If an even number of values, pair off the values, one higher with one lower than the desired value.

(b) If an odd number of values, link one value with two others, the stronger with two weaker, or one weaker with two stronger, as the case may be.

2. Place opposite each value, the difference between the value to which it is linked and the desired value, always keeping the values of the parts positive.

3. Total the parts.

4. Simplify the parts.

5. Prove by Rule I.

Example Va:

In what proportions may 6.5%, 5.0%, 3.0% and 2.5% cinchonas be mixed to make 3.5% cinchona?

$$6.5 \quad 0.5 \quad 1$$

$$5.0 \quad 1.0 \quad 2$$

3.5

$$3.0 \quad 3.0 \quad 6$$

$$2.5 \quad 1.5 \quad 3$$

$$\begin{array}{r} \underline{6.0} \quad \underline{12} \end{array}$$

$$\text{Proof: } 6.5 \times 1 = 6.5$$

$$5.0 \times 2 = 10.0$$

$$3.0 \times 6 = 18.0$$

$$2.5 \times 3 = 7.5$$

$$12 \quad) \quad 42.0 \quad (3.5$$

or

$$6.5 \quad 1.0 \quad 2 \quad 13.0$$

$$5.0 \quad 0.5 \quad 1 \quad 5.0$$

3.5

$$1.5 \quad 3 \quad 9.0$$

$$3.0 \quad 3.0 \quad 6 \quad 15.0$$

$$2.5 \quad 6.0 \quad 12 \quad)42.0(3.5$$

Example Vb:

How may 35, 25, 20, 10 and 5% substances be mixed to make 15%?

(I).

$$\begin{array}{r} 35 \quad 5 \quad 1 \quad 35 \\ 25 \quad 5 \quad 1 \quad 25 \\ 15 \quad 20 \quad 10 \quad 2 \quad 40 \\ 10 \quad 20-10 \quad 6 \quad 60 \\ 5 \quad 5 \quad 1 \quad 5 \\ \hline 55 \quad 11 \quad)165(15 \end{array}$$

(III).

$$\begin{array}{r} 35 \quad 10 \quad 2 \quad 70 \\ 25 \quad 5 \quad 1 \quad 25 \\ 15 \quad 20 \quad 5 \quad 1 \quad 20 \\ 10 \quad 10-5 \quad 3 \quad 30 \\ 5 \quad 20 \quad 4 \quad 20 \\ \hline 55 \quad 11 \quad)165(15 \end{array}$$

(II).

$$\begin{array}{r} 35 \quad 5 \quad 1 \quad 35 \\ 25 \quad 10 \quad 2 \quad 50 \\ 15 \quad 20 \quad 5 \quad 1 \quad 20 \\ 10 \quad 20-5 \quad 5 \quad 50 \\ 5 \quad 10 \quad 2 \quad 10 \\ \hline 55 \quad 11 \quad)165(15 \end{array}$$

(IV).

$$\begin{array}{r} 35 \quad 10 \quad 2 \quad 70 \\ 25 \quad 10 \quad 2 \quad 50 \\ 15 \quad 20 \quad 5 \quad 1 \quad 20 \\ 10 \quad 5 \quad 1 \quad 10 \\ 5 \quad 20-10 \quad 6 \quad 30 \\ \hline 60 \quad 12 \quad)180(15 \end{array}$$

| (V). | | | |
|-------|------|----------|----|
| 35 | 10 | 2 | 70 |
| 25 | 5 | 1 | 25 |
| 15 | 20 | 10 | 40 |
| 10 | 10 | 2 | 20 |
| 5 | 20-5 | 5 | 25 |
| <hr/> | | <hr/> | |
| 60 | 12 |) 180(15 | |

| (VI). | | | |
|-------|------|----------|----|
| 35 | 5 | 1 | 35 |
| 25 | 10 | 2 | 50 |
| 15 | 20 | 10 | 40 |
| 10 | 20 | 4 | 40 |
| 5 | 10-5 | 3 | 15 |
| <hr/> | | <hr/> | |
| 60 | 12 |) 180(15 | |

RULE VI.—Extension of Rule III to cover all cases of more than two ingredients. If known amounts of ingredients and their values are given, or a fixed amount of the desired intermediate value is sought, to find the amounts of other ingredients needed and the total amount of product produced, proceed as follows:

1. Apply Rule I for known quantities with known values, if more than one is given, and use the result as one ingredient with a known value.

2. If the total amount desired is given apply Rule IV.

3. Apply Rule II, or Rule V, as the case may require.

4. Total the parts.

5. Simplify the parts.

6. Use $x, x', x''; y, y', y''$ and z ;

x, x', x'' , etc., representing the stronger ingredients,

y, y', y'' , etc., representing the weaker ingredients,

z , representing the total.

7. Substitute the known amounts opposite their proper values and parts, and solve for x, x' , etc., y, y' , etc., and z by ratio and proportion.

8. Prove result by use of Rule I.

Example VIa:

How much water must be added to 40 Gm. 80% acid, and 200 Gm. 56% acids to make an acid 20%?

$$80 \times 40 = 3200$$

$$56 \times 200 = 11200$$

$$240 \quad) \quad 14400 \quad (\quad 60$$

$$\text{Proof: } 60 \times 240 = 14400$$

$$0 \times 480 = 0$$

$$720 \quad) \quad 14400 \quad (\quad 20$$

$$14400$$

Therefore 480 Gm. of water must be used.

Example VIb:

How much of 5% and 10% acid may be added to 420 Gm. of 50% acid to make it 25% and what amount of product will be made?

$$50 \quad 15 + 20 = 35 \quad 7 \quad x \quad 420$$

$$25 \quad 10 \quad \quad \quad 25 \quad 5 \quad y \quad 300$$

$$5 \quad \quad \quad 25 \quad 5 \quad y' \quad 300$$

$$85 \quad 17 \quad z \quad 1020$$

$$\text{Proof: } 50 \times 420 = 21000$$

$$10 \times 300 = 3000$$

$$5 \times 300 = 1500$$

$$1020 \quad) \quad 25500 \quad (\quad 25$$

$$2040$$

$$5100$$

$$5100$$

$$7 : 5 :: 420 : y, \text{ or } y = 300.$$

Therefore, 300 Gm. each of 5% and 10% acid may be added to 420 Gm. of 50% acid, and the total amount of the product will be 1020 Gm. of 25% acid.

Example VIc:

How much 95% and 50% sulphuric acid must be added to 380 Gm. of water to make it 25%?

$$\begin{array}{r r r r r r}
 95 & 25 & & 5 & x & 100 \\
 25 & 50 & 25 & & 5 & x' & 100 \\
 & 0 & 25-70 & 19 & y & = & 380 \\
 \hline
 & 145 & & 29 & z & = & 580
 \end{array}$$

$$\begin{array}{r r r r r r}
 \text{Proof: } 95 & \times & 10 & = & 9500 \\
 50 & \times & 100 & = & 5000 \\
 0 & \times & 380 & = & 0 \\
 \hline
 & & 580 &) & 14500 & (\ 25 \\
 & & & & 1160 & \\
 \hline
 & & & & 2900 & \\
 & & & & 2900 & \\
 \hline
 & & & & &
 \end{array}$$

$$19 : 5 :: 380 : x, \text{ or } x = 100.$$

Therefore, 100 Gm. each of 95% and 50% acid may be added to 380 Gm. of water to make it 25%, and the total amount will be 580 Gm.

Example VI*d*:

How much 80%, 60% and 30% alcohol may be used to make 1000 Gm. of 50% alcohol?

$$\begin{array}{r r r r r r}
 80 & & 20 & 1 & x' & 250 \\
 50 & 60 & & 20 & 1 & x' & 250 \\
 30 & 10 & + & 30 & 2 & y & 500 \\
 \hline
 & 89 & & 4 & z & = & 1000
 \end{array}$$

$$\begin{array}{r r r r r r}
 \text{Proof: } 80 & \times & 250 & = & 20000 \\
 60 & \times & 250 & = & 15000 \\
 30 & \times & 500 & = & 15000 \\
 \hline
 & & 1000 &) & 50000 & (\ 50
 \end{array}$$

Therefore 250 Gm. each of 80% and 60% alcohols, and 500 Gm. of 30% may be used to make 1000 Gm. of 50% alcohol.

Example VI*e*:

Given 250 Gm. 4%; 100 Gm. 10%; 50 Gm. 16% materials; how much 9, 11, 13, 17 and 18% substances of the same kind may be used to make 1400 Gm. of 12%. Let the substance be opium.

$$\begin{array}{r r r r r r}
 1. \quad \text{Rule I.} & & 4 & \times & 250 & = & 1000 \\
 & & 10 & \times & 100 & = & 1000 \\
 & & 16 & \times & 50 & = & 800 \\
 & & & & & \hline
 \end{array}$$

$$\begin{array}{r r r r r r}
 2. \quad \text{Rule IV.} & & & & 400 &) & 2800 & (\ 7\% = \text{value of given materials} \\
 & & 7 & \times & 400 & = & 2800 \\
 & & ? & \times & 1000 & = & 14000 \\
 & & & & & \hline
 \end{array}$$

$12 \times 1400 = 16800 = 14\%$ value to be obtained from the other ingredients, and this must total 1000 Gm. which with the 400 Gm. of 7% will make the 1400 Gm. of 12%.

$$\begin{array}{r r r r r r}
 \text{Rule V.} & & 9 & 3 & & y'' & 150 \\
 4. & & 11 & 4 & & y' & 200 \\
 5. & & 13 & 4 & & y & 200 \\
 6. & & 17 & 5 & & x' & 250 \\
 7. & & 18 & 3 & + & 1 & x & 200 \\
 & & & & & & \hline
 & & 20 & & & z & = & 1000
 \end{array}$$

8. Rule I. Proof:

$$\begin{array}{r r r r r r}
 8 & \times & 250 & = & 1000 \\
 9 & \times & 150 & = & 1350 \\
 10 & \times & 100 & = & 1000 \\
 11 & \times & 200 & = & 2200 \\
 13 & \times & 200 & = & 2600 \\
 16 & \times & 50 & = & 800 \\
 17 & \times & 250 & = & 4250 \\
 18 & \times & 200 & = & 3600 \\
 \hline
 & & 1400 &) & 16800 & (\ 12 \\
 & & & & 1400 & \\
 \hline
 & & & & 2800 & \\
 & & & & 2800 & \\
 \hline
 \end{array}$$

Therefore, to 250 Gm. 4%, 100 Gm. 10%, and 50 Gm. 16% opium, which in all makes 400 Gm. 7% opium, in order to make 1400 Gm. of 12% opium, there must be added 1000 Gm. of 14% opium, and this latter can be made by mixing together 150 Gm. of 9%, 200 Gm. of 11%, 200 Gm. of 13%, 250 Gm. of 17%, and 200 Gm. of 18% opium.

This last problem will be seldom met with, but really shows how such a difficulty can be solved. I have had occasion to use such problems in actual practice, in the manufacturing and dispensing of preparations.

DEPARTMENT OF PHARMACY,
UNIVERSITY OF NEBRASKA.

OFFICIAL NAMES FOR SYNTHETIC DRUGS.

To the Editor:

It is important that pharmacists should be familiar with the official names for synthetic drugs so far adopted by the Federal Trade Commission. These are:

Arsphenamine for salvarsan, diarsenol and arsenobenzol, etc.

Neoursphenamine for neosalvarsan, neodiarsenol and novarsenobenzol, etc.

Barbital for veronal.

Barbital-sodium for medinal and veronal-sodium.

Procaine for novocaine.

Procaine nitrate for novocaine nitrate.

Phenylcinchoninic acid for atophan.

Under the authority of the Trading with the Enemy Act and with the advice of the Subcommittee on Synthetic Drugs of the National Research Council, the Federal Trade Commission has provided for the manufacture in this country of the important synthetic drugs which before the war were imported from abroad, chiefly from Germany.

To insure the production of the synthetic drugs urgently needed, the Federal Trade Commission had to make it worth while for manufacturers to undertake the preparation of these articles without permitting their cost to become prohibitive but rather approaching the prices current before the war. This was accomplished by granting licenses good for the life of the patents under which such drugs are made and thus making a permanent investment for their production profitable. Partly to insure for manufacturers a market for their products after the war and in large part inspired by the idea of encouraging the establishment of a permanent American industry in these important articles, the Commission wisely decided that American houses should be put on the same footing as the foreign houses for the after-the-war competition by imposing on all licenses the obligation to use new, official names for the articles, names which after the war will be open to all competitors, domestic and foreign.

Obviously if these names are once in common use the exclusive rights of the foreign houses and their agents of using after the war the old established trademarked names will not seriously handicap the American firms, and all competitors will be on the same footing, with the advantage only to those who can produce most cheaply the better article.

It is obvious that the American physician in final instance is the arbiter who can put this wise plan into operation and establish the new names firmly by prescribing these remedies by their new official names. However, *the adoption of these names by physicians will depend very largely on the pharmacist's familiarity with them.* Unless the physician is confident that the pharmacist to whom his prescription is taken is familiar with the official names, he will feel constrained to use the old, proprietary names. The pharmacist, therefore, should familiarize himself with the new, official non-proprietary names given at the beginning of this letter.

Yours truly,

JULIUS STIEGLITZ, *Chairman*,
SUBCOMMITTEE ON SYNTHETIC DRUGS
NATIONAL RESEARCH COUNCIL.

UNIVERSITY OF CHICAGO,
CHICAGO, ILL.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

DETROIT.

The first meeting of the 1918-19 season of the Detroit Branch, A. Ph. A., was held October 23, at the Wayne County Medical Building, with Prof. E. R. Jones, the new president, in the chair.

Miss May Strawn, the secretary, having left the city, Fred Ingram was elected to fill the vacancy.

Hugh Craig, director of advertising of the Nyal Company, gave a talk on "YEAST, a substance much needed in business." He defined yeast by giving a meaning to each of the five component letters:

Yoursel
Economy
Attraction
Service
Thought

By putting *yourself* in your business, making your store reflect your own individuality, exercising *economy* in buying, selling, and store management, making your store *attractive* to customers by pulling windows, interior display, and occasionally changing the internal arrangements; rendering *service*, not servitude; and taking time to give real constructive *thought* to your business, Mr. Craig showed us that we put leaven in our business that is bound to make it rise. His stimulating talk would have benefited every retailer in the city.

This talk impels us to urge every pharmacist in the city to attend these meetings regularly. They are free, open to all, and every one who comes learns something that, properly adapted, brings him additional monetary profit.

This talk was discussed over doughnuts and cider. Many valuable ideas were brought out. Every one contributed his share.

FRED INGRAM, *Secretary*.

NOVEMBER MEETING.

After a dinner at the Fellowcraft Club, President Jones called the meeting to order at 8.30 P.M., forty being present.

A letter of greeting from E. G. Eberle was read and placed on file.

Mr. Grommet, Chairman of the Program Committee, outlined his plans for the season and asked for suggestions regarding having a social evening with the ladies present.

Mr. Hall, to formally bring the matter up, moved that we have a social evening at which the ladies be present, the program to be arranged by the officers. Supported, carried.

It was also moved and supported that a dinner precede each of our monthly meetings. Carried.

Henry Kraemer, professor of Pharmacognosy at the University of Michigan and ex-president of the American Conference of Pharmaceutical Faculties, was then introduced. He stated that the present war situation compelled an introspection into the condition of our profession, particularly since Surgeon General Gorgas, of the Army, had declared, regarding the establishment of a Pharmaceutical Corps, that pharmacy was a non-essential specialty. To ascertain for us the facts which caused Doctor Gorgas to make that statement, Doctor Kraemer sketched the prevailing condition of the retail drug business, the part most accessible to the outsider, and asked if pharmacy as now practiced in the majority of cases would inspire a belief among ourselves or outsiders in its essential status.

Dr. Kraemer's endeavor is to create the ideal type of pharmacist who, he said, was the professional type including the manufacturer, the scientist, and the prescriber.

The Technical High School can be made part of the program by serving to train men for pharmacy who can be used in stores as helpers and, if ambitious, they would then go on

in the profession, eventually attending the university type of schools.

In order to bring about this contemplated regeneration it is necessary for the boards of pharmacy to have more power. A man with no education or training can practice pharmacy by merely passing the State Board. He asserted that a preliminary education should be a requirement in order to produce men of real professional standard.

He then showed us slides of various drug store window displays which might lead anyone to question the essential status of pharmacy as practiced to-day.

This was followed by portraits of the pioneers and leaders in our profession, among them Pasteur, Gignard, Reiss, Flückiger, Hanbury, Schlotterbeck, Prescott and Stevens, men who believed in pharmacy and have been recognized as high class professional men. In closing he stated that there was need of more such leaders and he urged that we all think and act.

Mr. Seltzer, in the discussion which followed, expressed his sympathy with Doctor Kraemer's ideals. In order to bring them about, he stated, it was necessary to secure the reform through the legislature, and therefore we must appeal to the people to convince them of its necessity.

Mr. Webster stated it was necessary to see the druggists on the general proposition, since the opposition to the last "prerequisite" bill came from the druggists themselves.

Mr. Weaver said that the need for trained men is greater now than ever, and that educated pharmacists will be considered essential as they show themselves worthy.

Mr. Mann feared that druggists lacked the courage of their own convictions, he said that most of them want higher standards but will not work to secure them. It is up to us as pharmacists to bring this about, just as the medical profession raised their own standards and thereby increased their professional standing.

Doctor Kraemer at this point mentioned the official recognition of pharmacy in the Students' Army Training Corps.

Mr. Schettler briefly sketched the development of his career. Originally making most of his galenicals, the lower prices of the manufacturing pharmacists eventually caused him to largely abandon this practice. The separation of commercial from professional pharmacy would be the solution. On the other hand, it takes little professional skill to compound most of the prescriptions as written by physicians to-day.

Mr. Hall urged a faithfulness to our ideals, to our ambition for better pharmacy and that we inspire enthusiasm for our ideals in our employees.

Mr. Mason stated that he did not deplore the advent of commercialism, and that we have not gone down hill. He said he was certain that Geo. B. Evans, the leading commercial druggist, takes considerable pride in his prescription department and has many practical innovations in that department that merit imitation.

He believed that the professional pharmacy is gradually being developed. Economic conditions are responsible for the present status and the pendulum will no doubt swing back from extreme commercialism in due time. He agreed with Doctor Kraemer in the division of pharmaceutical education into two schools, one to train men to run drug stores, the other to train professional pharmacists. Evolution, not revolution, will bring about the desideratum, he said.

Doctor Stevens believed evolution would solve the problem; without blaming the druggist for the existing conditions, he felt that we were not elevating our standards by the types of pharmacies existing to-day.

Mr. Rohnert said a highly trained man is not needed to run the average drug store, and that it would be a mistake to make the standards too high.

W. L. Scoville said that such a complex matter deserves a great deal of consideration. Some commercialism is necessary in every profession. How is this thing looked at on the outside? That is the ladder on which we must climb.

Hugh Craig believed it best to have both kinds of pharmacy in one store. Both kinds can be cleansed and improved. The professional side must not be submerged but should be emphasized, developed and better regulated by the boards of pharmacy.

There were further discussions by Messrs. Bye, Blome, Moore and Buzzell.

It was moved, supported and carried, that our December meeting be advanced one week.

It was moved, supported and carried that Frederick Stearns & Co. be given a vote of thanks for their kindness in extending to us the use of their lantern and operator for this meeting. Carried.

It was moved and supported that Doctor Kraemer be given a rising vote of thanks for his good and interesting talk. Carried.

The meeting adjourned at 11.45 P.M.

FRED INGRAM, JR., *Secretary.*

CHICAGO.

The ninety-eighth monthly meeting of the Chicago Branch of the American Pharmaceutical Association was held at the City Club, Wednesday evening, November 20th, with forty members and visitors in attendance.

The meeting was preceded by a dinner. Vice-President Clark presided.

Minutes of the previous meeting having been published were approved without reading.

William Gray reported for the Membership Committee that sixty-five new members had been received during the year ending September 1, and that sixteen members had been lost, two of these, Louis C. Deck, of Girard, and F. C. Shapper, of Chicago, by death. Since September 1, seven new members have been received and three lost by death, namely, Dr. Carl Lutz, of Ottawa, Messrs. Chas. Fuller and Fred M. Schmidt, of Chicago. The total membership is now two hundred.

Representatives of all the pharmaceutical organizations centered in Chicago were present and entered into the subject of the evening: "What Has Organized Pharmacy Done in the War? What Are the Pharmaceutical Reconstruction Problems?"

The great work of the N. A. R. D. being accomplished through Secretary Henry and Counsel Eugene Brokmeyer at Washington was recognized. Pharmacy has given ungrudgingly of her young men to the Service, many thousands of them, and now the problems of restoring these men to their former places in business and professional life are before us. In Mr. Brokmeyer, the retail druggist has a man right on the ground and, backed up by the great organization behind him, ready to take advantage of every opportunity for the betterment of conditions in retail pharmacy. There is good prospect that the great stringency of competent help in drug stores will soon be relieved by the return to civil life of many pharmacists from the military and naval forces.

The A. Ph. A. has provided for a committee to look after the needs of pharmacists returning from the war forces. This committee, headed by F. H. Freericks of Cincinnati, has outlined its plans under a broad scope and a very comprehensive questionnaire will soon be presented to every retail pharmacist, by which information will be sought as to pharmacists and assistant pharmacists in the military or naval service, and as to providing places in

the drug business for these men upon their return. The committee also plans to look after the completion of their pharmaceutical education and to provide special facilities for their registration. The committee desires to work with committees from State and local organizations so that there may be a personal touch given to the work.

Secretary Wm. B. Day referred to Chairman Hilton's report on the status of the pharmacist in the Army and Navy. He stated that, even though the formation of a pharmaceutical corps in the Army had not so far been accomplished, with the ending of the war and a better understanding of the wishes of the pharmacists by the leading medical officers of the Army, the prospects for obtaining such a corps were not dead by any means. He urged that every effort be brought to bear upon Congress to bring about this much-desired result. The A. Ph. A. has purchased liberally of Liberty Bonds from its funds.

The C. R. D. A. was represented by President Umenhofer who summarized the war activities of this strong local organization as follows: Every member of the C. R. D. A. responded to the request of the Red Cross that prescriptions for dependent families of soldiers and sailors be filled without charge, or at actual cost. There are stores where more than sixty of such prescriptions have been filled and not a single druggist has rendered an account to the Red Cross for reimbursement. The C. R. D. A. War Fund, instituted through Mrs. Walgren, a veteran of the Spanish-American War, has grown to a considerable size, and is being disbursed to needy pharmacists in the Service and to sick and disabled pharmacists who have returned from the front. The Woman's Organization of the C. R. D. A. has charge of these disbursements. C. R. D. A. members rendered a marked service in connection with the great War Exposition by selling more than 100,000 entrance tickets. This service was highly appreciated by the War Exposition Committee. C. R. D. A. members are systematically assisting in the sale of War Savings Stamps and many members have volunteered as Liberty Bond salesmen. The C. R. D. A. has purchased Liberty Bonds from its own funds and the purchases of these bonds by the individual members will average very high. The number of C. R. D. A. members in the Service is approximately 140.

Mrs. J. H. Riemenschneider spoke for the Woman's Organization of the C. R. D. A.

Among their activities she mentioned: An active interest in the Sunbeam League of the Red Cross; more than 500 books to the War Libraries; 55 pairs of woolen socks knitted for pharmacist soldiers from yarn purchased by their organization; the sale of \$67,100 of Fourth Liberty Loan Bonds; purchase of Liberty Bonds by the organization and by every member of the organization so that their chapter was 100 percent. Their service flag has twenty blue stars.

The Chicago Drug Club, represented by President Otto Mentz, has thirteen members in the Service and also thirteen sons and daughters. The members are most thankful that no gold stars need be added to their flag. The Club has subscribed for Liberty Bonds.

Mr. Christensen, speaking for the National Association of Boards of Pharmacy, stated that their organization had purchased Liberty Bonds.

The Chicago Veteran Druggists' Association was represented by E. Von Hermann, who read a letter from Secretary Bodemann. Mr. Bodemann stated that from their membership of thirty, there were nine blue stars, representing nine sons or grandsons in the Service, and two gold stars. The organization has purchased Liberty Bonds and given to the Red Cross. Despite the fact that a large proportion of their members are German-born or of German parents, nothing but the finest loyalty to our country has ever been expressed in their meetings and no quarrels or harsh words have been spoken there.

Fred Elsner spoke for the I. Ph. A. Travelers' Association. He stated that while they never had a free balance in their treasury, it was because they drew such large drafts for maintenance of the morale of the war-stricken retail druggists.

By special request, Dr. Bernard Fantus responded for the A. M. A. Secretary Simmons, of the A. M. A., upon being asked what he considered as the most valuable service of the A. M. A. in the war, replied, "the keeping of quacks and incompetents out of the Medical Corps." Their card index of every practicing physician and surgeon of the United States had been freely consulted by the Surgeon General's office. An endeavor had been made to leave, in every community, as many physicians as were really needed. Of the 81,000 members of the A. M. A., 33,884 are in the Service. Many have been killed and wounded.

Doctor Simmons also stated that the American Medical Association favored a well-trained

pharmaceutical corps for the Army. He believed that the chief reason for the Surgeon General's ruling against the establishment of such a corps was the lack of standard educational qualifications for pharmacists.

Prof. W. B. Day, speaking for the U. of I., School of Pharmacy, stated that an incomplete list of alumni in the Service totalled 110, and that under-graduates of last year's classes were in Service, while of this year's classes 70 were in the Students' Army Training Corps.

The following motions were adopted:

"That the Chicago Branch, A. Ph. A., assembled in regular meeting at Chicago, November 20th, endorse the plans of the Advisory Committee of the American Pharmaceutical Association for Soldier and Sailor Pharmacists as outlined in communications from Chairman Freericks and reviewed by Member H. C. Christensen.

"That a committee of three members of the Chicago Branch be appointed by the Chairman to coöperate with the Advisory Committee of the American Pharmaceutical Association for Soldier and Sailor Pharmacists.

"That the Chicago Branch respectfully request the Department of Education and Registration of Illinois to include in the form for renewal of certificate to be mailed to pharmacists and assistant pharmacists the following question:

'Are you or have you been in the military or naval service of the U. S.? If so, what Branch and Unit?'

"That Article 10 of the By-Laws be amended by striking out 'Friday' and substituting therefor 'Tuesday' so that Article 10 will read 'Meetings—Meetings shall be held on the third Tuesday of each month, except during the months of June, July, August and September, etc.' "

E. N. GATHERCOAL, *Secretary*.

NEW YORK.

The November 1918 meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Turner in the lecture hall of the New York College of Pharmacy Building, on Monday evening, the 11th, at 8.30 o'clock.

There were fifty members present.

The regular order of business was changed at the request of Dr. Royal S. Copeland, Commissioner of the Department of Health, who

gave an address on "The Present Epidemic and the Work of the Health Department."

It was now moved, seconded and carried that the privilege of the floor be extended to all present. There followed a discussion by Dr. Runyon, Mr. M. Zagat, Dr. Diner, Dr. Hostmann, and Dr. Anderson. A rising vote of thanks was then tendered Dr. Copeland.

Progress of Pharmacy.—Dr. Dickman, because of the late hour, brought in no report.

This completed the Scientific Session.

BUSINESS SESSION.

Because of the late hour the reading of the minutes was dispensed with.

Treasurer's Report.—The Treasurer's report was read and ordered accepted.

Committee on Fraternal Relations.—Dr. Lascoff brought in no report.

Audit Committee.—Dr. Diner brought in a report which was ordered accepted.

Committee on Education and Legislation.—Mr. Lehman brought in a report which was discussed by Dr. Rehfuß and ordered accepted.

Membership Committee.—An application from Mr. Kenneth A. Bartlett, care of E. R. Squibb & Sons, Brooklyn, N. Y., was received for membership in the Parent Organization and the following three applications for membership in the Local Branch:

Mr. Emil Roller, 574 Amsterdam Ave., New York City; Eugene L. Maines 245 Quincy St., Brooklyn, N. Y.; Chas. H. Stocking, 3 Park Place, New York City.

The death of Dr. Niece was reported. Appreciations of Dr. Niece were delivered by Dr. Mayer and Mr. Mayo. It was moved, seconded and carried that a committee be appointed to draw up suitable resolutions. The committee consisted of Dr. Mayer, Mr. Mayo and Mr. Bigelow.

Dr. Lascoff and Mr. Fisher discussed the Ambulance Committee's work.

Under regular procedure the meeting was declared adjourned.

HUGO H. SCHAEFER, *Secretary*.

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held at the Philadelphia College of Pharmacy, Monday evening, November 18, with President W. W. McNeary in the chair. The usual business matters were dispensed with, due to the lengthy program, and after the election of three new members, E. G. Eberle presented a report of the annual

convention of the American Pharmaceutical Association. This was done comprehensively and with the speaker's usual thoroughness and tact. J. C. Peacock then read a concise but interesting report of the Pennsylvania Association's successful meeting. The National Wholesale Druggists' Association was represented by Dr. Adolph Miller, whose very enjoyable report is usually looked forward to each year by Branch members. Elmer Hessler briefly reviewed his trip to the Annual Chemical Exposition exhibited in New York, and spoke of the resourcefulness of the Yankee chemist. The main topic of the evening was then opened with the reading of a paper by Dean Charles H. LaWall, who characteristically termed his essay:

"BOLSHEVISM IN AMERICAN PHARMACY."

Attempting to summarize this paper is out of the question; it is to be published in the JOURNAL of the Association. It is well worth careful perusal and digestion. Dealing as it does with the question of the separation of the professional from the commercial, it treats of a present-day problem that is not only confronting the educators, but also every retail druggist or pharmacist in the country. The title is undoubtedly well chosen when one considers the most recent definition of the Bolsheviki—individuals whose heads are in Arcadia and their feet still on the old terrestrial sphere.

Following Professor LaWall's able paper, Doctor Sturmer delivered one of his careful and analytical speeches. He dealt particularly with the effect of the war on American pharmacy and very dramatically pointed out that the pharmacists who had remained behind had "kept the home fires burning bright." Pharmacy still prospers, even if there was a disposition in Washington to ignore it. Attention was called to the reliance placed upon pharmacists in Philadelphia's hour of trouble when the grim reaper came so suddenly and demanded such a heavy toll, and it is not said that they were at all lacking in their duties as public servants. Doctor Sturmer stated that pharmacy can look to the future with confidence and that, despite opposition and apathy, it will in due course establish itself firmly with its sister professions, all of which had to find their place in the sun only after a tedious evolutionary process that required decades for its consummation.

Samuel C. Henry, of Chicago, and an honorary member of the Branch, was a welcome

visitor and expressed his gladness at being back with his friends in his usual sincere fashion. The topic of the evening was keenly discussed by a number of the members. Doctors Lowe and Bernstein, Messrs. Peacock, Cliffe, Hunsberger, and Beringer, were particularly prominent in stating their views on the question. The latter four members were

able to present views which were peculiarly interesting in that they are four retail pharmacists whose business acumen, as well as their high professional rating, is beyond questioning.

The meeting adjourned at 11.15 and was undoubtedly highly instructive and interesting.

IVOR GRIFFITH, *Secretary*.

COMMITTEE REPORTS

REPORT OF COMMITTEE ON THE U. S. PHARMACOPOEIA, AMERICAN PHARMACEUTICAL ASSOCIATION.*

It has been exceedingly difficult to secure observations, criticism or suggestions from the various members of the committee. The reasons therefor are probably due to the present disturbed conditions, not only in United States, but the world over. There are, however, submitted herewith a number of observations, suggestions and criticism which it is believed will be of service in the working out of the 10th decennial revision of the U. S. Pharmacopoeia.

The question of ash content in drugs should receive careful investigation. This material finds its way into the whole and powdered drugs through various avenues. Some of the plants are grown in sandy soil and the silicious matter may be greatly augmented by the simple, mechanical adherence of the sandy matter. The nature of the drugs is sometimes such as to make it very difficult to remove the inorganic matter from the plants either at the time of gathering or subsequently. In many instances the ash content varies greatly with the nature and character of the soil in which the plants are produced. The ash content of the same drugs grown in the same field often varies materially. It is believed all of these factors should be carefully worked out, from the commercial, botanical, analytical and other points of view. It is not believed that with our present limited knowledge very much dependence can be placed upon ash limitations.

The present standard for maximum ash content for rhubarb is 1.3%. Excellent specimens of whole rhubarb have been met with containing very much higher percentage of ash. In the case of powdered drugs the miller is sometimes looked upon with suspicion when there is really no foundation for such a suspicion and every effort should be made to correct questioned standards, which would tend to reflect unjustly upon manufacturers and dealers.

CANNABIS INDICA The present physiological method contained in the Pharmacopoeia for testing *Cannabis Indica* has been subject to repeated criticism. A detailed criticism has been referred to the Committee on Revision. It is believed that the question should receive very careful and thorough consideration.

CREOSOTE: Manufacturers have repeatedly complained relative to the so-called glycerin test for the alleged detection of "coal-tar creosote" in creosote. The point raised was that this test discriminates against the American-made creosote in favor of imported product. It is believed that this criticism should be carefully investigated and, if found correct, the test should be modified.

Several members of the committee have made suggestions and criticism which are submitted as received and are as follows.

H. ENGELHARDT.

ACETUM SCHLLAE: This preparation should be omitted because it is therapeutically not sufficiently active.

ACID BENZOIC: A more definite test for distinguishing between the natural and synthetic acid should be given.

ACID HYDRIODIC: The residue left after evaporating and incinerating 5 mls of the acid is not potassium carbonate as is usually accepted but is potassium iodide which volatilizes when too high a heat is applied. Therefore it should be stated that the heating should be carried out only at dull redness.

* Presented at Chicago meeting American Pharmaceutical Association, 1918.

ACID LACTIC: In the assay process it is stated that a certain amount of the acid be poured into a tared and stoppered bottle. How can this be done? The phraseology should be changed.

ACID PHOSPHORIC: It would be advisable to change the assay process which is a very cumbersome one.

ACID SALICYLIC: More definite tests for distinguishing between natural and synthetic acids should be given.

ACID SULPHURIC AROMATIC: The assay process given in the Pharmacopoeia is wrong. It would be advisable to adopt the process published by Penniman and Randall in the *Jour. Indus. & Eng. Chemistry* for October 1916.

ACONITINE: Physiological test of the alkaloid should be given because commercial samples vary very widely in toxicity.

ACONITE AND ITS PREPARATIONS: The assay process should be thoroughly revised as the chemical results are not in proportion to the physiological results. It is impossible to obtain a definite end point when using cochineal as indicator. Methyl red therefore should be used, by which results are obtained which indicate the toxicity of the drug better than the results obtained with cochineal.

CANNABIS: If physiological tests for this drug and its preparation are to be retained a reliable method should be given. The present method gives results which are far from satisfactory.

CAPSICUM: We have found that in some years it is impossible to obtain 15% of ether-soluble oleoresin from the average commercial drug. The drug seems to be subject to considerable seasonal variation.

CODEINE AND ITS SALTS: Why is only an assay process for Codeine Phosphate given and not for the alkaloid and the sulphate?

CRESOL: Commercial cresol is not always soluble in 60 parts of water.

DIGITALIS: The physiological assay method should be revised and the one-hour frog test preferably be replaced by the 12-hour frog or still better by the cat method.

EMETINE HYDROCHLORIDE: The U. S. P. states that emetine hydrochloride contains variable amounts of water. A properly prepared salt contains about 7 molecules of water of crystallization which would correspond to the 19% of moisture permitted by the U. S. P.

F. E. PODOPHYLLUM: A standard should be given.

F. E. SQUILL: The manufacturing method should be revised. A detailed paper on this subject will be submitted by Messrs. Grantham and Colson at the Chicago meeting of the association. (Printed in November issue of the *JOURNAL*, p. 940.)

MERCURY SALICYLATE: The assay process might well be simplified. It can be carried out by treating a weighed amount of the sample with sulphuric acid and nitric acid and titrating the solution thus obtained with potassium sulphocyanide as directed under mercury.

LINIMENT OF CAMPHOR: The limits of the requirements are too narrow considering the difficulties which are encountered in the assay process.

LIQUOR ARSENIC AND MERCURY IODIDE: It has been stated that the arsenic in the arsenous state is easily oxidized into arsenic in the arsenic state. It would therefore be advisable to make in addition to the estimation of the arsenous arsenic a determination of the total arsenic.

LIQUOR CRESOLIS COMPOUND: A method for the estimation of the water in the preparation should be given since this preparation comes under the Insecticide Act which requires a statement of the inert ingredients, in the preparation.

HYDROGEN PEROXIDE: A method for estimating the acidity should be given. By the present method only one-half of the acidity is estimated.

LIQUOR POTASSIUM ARSENITE: The total arsenic in Fowlers Solution should be estimated in addition to the estimation of arsenous arsenic. Under certain conditions an oxidation of the arsenous arsenic to arsenic is liable to occur.

MAGMA BISMUTHI: The electrolytical process should be given as an alternative method. By simply evaporating a definite quantity of the magma to dryness and weighing the residue, soluble salts present in the preparations are estimated also.

OLEATE OF MERCURY: An assay process should be given.

OLEORESIN MALEFERN: An assay process should be given.

PANCREATIN: The milk test should be omitted.

PODOPHYLLIN: More details of the assay method should be given.

POTASSIUM CHLORATE: Why is test for nitrites and nitrates omitted?

QUININE AND ITS SALTS: Kerner's test as given in the U. S. P. for foreign cinchona alkaloids is too lenient.

RESIN JALAP: Details for estimating the solubility in ether and chloroform should be given.

SODIUM PHOSPHATE: The assay process is very cumbersome.

SPARTEINE SULPHATE: Assay process should be given.

SPIRIT AMMONIA AROMATIC: The alkalinity should be determined.

STROPHANTHIN: Physiological assay method should be given.

STRYCHNINE AND ITS SALTS: Assay methods should be given.

SYRUP OF IPECAC: Why is acetic acid added when the fluidextract already contains hydrochloric acid?

SYRUP OF SQUILL: Why not make this preparation with fluidextract of Squill?

TINCTURE IODINE: The percentage of alcohol is given at 83%, while theoretically it is 87%.

TINCTURE GINGER: Standard for total solids should be more definitely stated.

UNGUENTUM HYDRARGYRI: Considering the difficulty experienced in making this ointment the limits for required percentage of mercury should be extended.

E. P. BIGELOW, SUBMITTED BY E. H. LAPIERRE.

IMPURITIES IN POTASSIUM CARBONATE AND BICARBONATE.

RECOMMENDATIONS FOR ADDITIONAL U. S. P. TESTS.

During the past twelve years the writer has had occasion, as a matter of routine, to examine a great many samples of high grade Potassium Bicarbonate and for several years many samples of Potassium Carbonate also, and the requirements for the purity for these salts as given in the U. S. P. both 8th and 9th revisions have been found inadequate.

The purchaser of products conforming to the U. S. P. standards should at least expect to be safeguarded against the possibilities of *dangerous* impurities; nevertheless, such is not the case as regards KHCO_3 or K_2CO_3 . These dangerous impurities have been found in K_2CO_3 prepared before the War under normal conditions of production and manufacture as well as in that now produced and on the market. Traces of these impurities have been occasionally found in KHCO_3 .

The requirements of the B. P. on the other hand are more stringent as regards these two salts and with few exceptions are open to but little criticism. For this reason it is to the advantage of the manufacturer to specify B. P. instead of U. S. P. when purchasing K_2CO_3 or KHCO_3 .

Based on the writer's experience the most objectionable impurities not provided for in the U. S. P. are as follows:

1. ARSENIC: This has been found in high grade calcined K_2CO_3 in amounts varying from 10 parts per million to as high as approximately 100-200 parts per million, and possibly even in larger amounts, as the total quantity was not always determined. Certainly an excessive figure, and as K_2CO_3 is often used in medicinal preparations the presence of such a product would be fraught with much danger.

Arsenic has been found in KHCO_3 in *traces* only and then usually in the powdered salt. Some hydrated K_2CO_3 tested showed 10 parts per million. The British Pharmacopoeia (see U. S. Dispensatory, 20th Ed., page 894) limits the arsenic content in K_2CO_3 to 2 parts per million and in KHCO_3 (page 883) to 5 parts per million. The only test in the U. S. P. at all applicable is the "Time Limit Test" for heavy metals, which is entirely inadequate for arsenic in such quantities. The writer uses a modified Marsh method with a preliminary treatment of the product with HNO_3 and H_2SO_4 .

2. CYANIDE COMPOUNDS: These may be present in Potassium Carbonate (or possibly bicarbonate) prepared by the Leblanc process in which coal containing appreciable amounts of nitrogen is employed, or from any source where the ignition of nitrogenous matter takes place during the process. Cyanide compounds have been found in quite a number of

samples of high grade calcined K_2CO_3 and in a few cases in appreciable amounts. Preliminary tests indicated ferrocyanide. One sample of a poor grade contained KCN. No cyanides have been found in the samples of $KHCO_3$ examined.

The British Pharmacopoeia allows no characteristic reactions for cyanides in K_2CO_3 , and Merck, "Chemical Reagents, Their Purity and Tests," 1914, page 129, provides a test for KCN in K_2CO_3 . Krauch, "Testing of Chemical Reagents," 3rd Ed., on page 225, also gives a test for KCN in K_2CO_3 .

The writer employs a modified Prussian blue test which is accurate and sufficiently delicate (except in the presence of chlorates). The test is as follows: Introduce 1.8 Gm. of calcined K_2CO_3 , or 2.8 grammes of $KHCO_3$, into a dry test tube, capacity about 40 mils. Add 0.100 Gm. powdered ferrous sulphate (or more if necessary), mix, and next add 4 mils distilled H_2O and 0.5 mil 10% NaOH in the case of the K_2CO_3 and 2 mils 10% NaOH and $3\frac{1}{2}$ mils H_2O in the case of $KHCO_3$. Then in both cases mix well, put in water-bath (temp. $140-160^\circ F.$) and allow to remain about 10 minutes, occasionally shaking to insure complete solution. Next add to each tube 2 drops 10% $FeCl_3$, mix and at once add enough conc. HCl to render solution slightly acid (add acid very cautiously to avoid loss from effervescence), usually takes about 2.8 to 3 mils.

Examine tubes for¹ greenish coloration or precipitate, comparing with pure control and one containing a known amount of KCN. Then allow to remain for a few hours or over night, filter through a Whatman No. 44, 11 cm. "wetted" filter, wash with water and examine for traces of blue residue of ferric ferrocyanide. This test readily detects 0.00004 Gm. KCN in K_2CO_3 and 0.0001 Gm. in $KHCO_3$.

The addition of dry powdered ferrous sulphate or the dry sample in the test tube, before adding the alkaline hydroxide solution and water, prevents any interference from sulphur compounds sometimes present in K_2CO_3 . It is very essential that the test should be filtered, otherwise traces of the blue precipitate are apt to escape detection. The presence of chlorates renders the test unreliable.

3. SULPHOCYANATES: KCNS has been found very frequently in calcined and hydrated K_2CO_3 in amounts varying from 0.01% to as high as 0.09%. Traces have been found in $KHCO_3$.

4. CHLORATES: This impurity may be present in K_2CO_3 or $KHCO_3$ prepared from electrolytic KOH. It has been found in amounts varying from traces up to 0.12% as $KClO_3$. It was detected chiefly in powdered $KHCO_3$ and calcined K_2CO_3 .

Among the less objectionable impurities are the following:

1st. Sulphides. Found in traces in $KHCO_3$ and in calcined K_2CO_3 . Sometimes in appreciable amounts in hydrated K_2CO_3 .

2nd. Nitrites. Found frequently in samples of Japanese (so called) K_2CO_3 in slight amounts.

3rd. Iodides. Found in a number of samples of K_2CO_3 . Possible source Kelp Ash.

4th. Ammonium Salts. Found occasionally in samples of $KHCO_3$, usually in powdered product.

5th. Sodium. Almost always present in amounts varying from traces to as high as 10-12% (as Na_2CO_3) in K_2CO_3 , and from bare traces up to 7% (as $NaHCO_3$) in $KHCO_3$.

Such samples containing less than 99% pure product would of course not conform to the U. S. P.

6th. Sulphates, Chlorides, Phosphates. Frequently present in K_2CO_3 . Chlorides, also, usually present in $KHCO_3$.

7th. Nitrates. Occasionally present in K_2CO_3 .

8th. Iron. Almost always present in both $KHCO_3$ and K_2CO_3 .

9th. Silica and Silicate. Frequently present in K_2CO_3 . Occasionally quite heavy in Japanese K_2CO_3 .

¹ Is blue when washed free from $FeCl_3$.

With the development of new sources of potash, due to shutting off our main supply, there is of course the possibility of additional impurities as well as those previously existing, such as, for example, iodides from potash from kelp ash, nitrites from (so-called) Japanese potash (both mentioned above) and borax in the Searles Lake product.

The Imperial Institute, London, in a bulletin entitled "The World's Supply of Potash," 1915, on page 12, gives the analysis of the salts of Searles Lake brine in California and one of the constituents is Sodium Arsenate, 0.17%. If such is the case there may be possibilities from this source.

The suggested use of Calcium Fluoride in connection with the recovery of Cement Dust Potash may mean the presence of Fluorides in the purified product.

SUMMARY.

From the results of analyses of many samples of potassium carbonate and bicarbonate it seems evident that the following tests should be added to the requirements of the U. S. P.

1st. Suitable tests for Arsenic with limit set for amount allowed.

2nd. Test for Cyanide Compounds.

3rd. Test for Sulphocyanates.

4th. Test for Chlorates.

Tests for sulphides, nitrites, iodides, ammonium salts and other less objectionable impurities mentioned above might be considered advisable.

E. Fullerton Cook: "In making the report of the Committee this year, my only suggestion is with reference to the methods for the next revision. As the work progressed on the U. S. P. IX, we became more and more dependent for conclusions upon personal conferences. Often many decisions were reached in this way in one meeting, which would have required months of correspondence under the usual plan.

I hope that the Committee can point out this advantageous method of conducting the work and would be willing to advocate it as a policy for the next revision."

There is no doubt but that much room for improvement exists as regards methods involved in preparing a revision of the U. S. Pharmacopoeia. A procedure that consumes six years to get out a new revision is entirely too long. The time should be cut in half at least. Various plans for doing this have been suggested. One is, as indicated by Professor Cook, to call together in conference the various members of a sub-committee to consider any vital points involved and determine them by this means rather than by a long, tedious method of correspondence. It has been suggested that a permanent central laboratory, conducted by the Pharmacopoeia committee of revision would materially expedite the work and be productive of excellent results.

Considerable agitation has been abroad relative to the revision being made by the Government. It is held that in view of the fact that the book is the legal standard under the Food and Drugs Act, enforced by Government agencies, the standards should be worked out and promulgated through Government agencies rather than having them delegated to other bodies. Objections obtain relative to this course of procedure because it is believed undesirable to place in the hands of a Governmental Department the formulation of standards of so important a publication as the U. S. Pharmacopoeia represents. Recently a plan has been suggested which endeavors to bridge over the conditions obtaining at present, namely, that the revision be placed in the hands of a committee of five, one from each of the following organizations: The American Pharmaceutical Association, U. S. Department of Commerce, U. S. Treasury Department, U. S. Department of Agriculture and the American Medical Association.

In conclusion the Committee desires to thank all who assisted in the work and regrets exceedingly that the report does not go into greater detail on more subjects.

Respectfully submitted,

L. F. KEBLER, *Chairman*.

REPORT OF THE A. PH. A. COMMITTEE ON MODEL FOR MODERN LAWS PERTAINING TO PHARMACY.*¹

The work of your Committee on Model for Modern Laws Pertaining to Pharmacy has made progress during the year, but it has not been completed. Many suggestions pertaining to detail have been made within the Committee, and also by members of the Voluntary Conference, which, almost without exception, will improve the Preliminary Draft² submitted last year, and most of which will undoubtedly be accepted by the Committee. The more important and newer provisions have been widely discussed in pharmaceutical journals, at State meetings and otherwise, but in the opinion of the Committee they require even further discussion, criticism and suggestion for improvement before they are finally adopted. Some difference of opinion exists with reference to some of the features, which deserve every consideration. It has been decided that as briefly as possible we at this time submit the features upon which there has not been full agreement or regarding which further helpful advice is desired. We solicit the widest discussion on the following proposals contained in the Preliminary Draft:

1st. It is proposed in the Preliminary Draft to place the enforcement of all laws governing pharmacy and the drug business with the State Boards of Pharmacy under the direct supervision of a Drug Commissioner who is to be an appointee of the Board of Pharmacy. It will be noted that this makes the Board of Pharmacy a very powerful institution. Apart from the practical difficulties of enactment which need not be discussed here, the objection is raised that the Board of Pharmacy should be an Examining Board only, and that the enforcement of laws governing the pharmacist and the druggists should rest with other State Departments because other than pharmacists and druggists are also controlled by such laws and for the further reason that the enforcement will be more impartial. Those who favor complete control by a Drug Commissioner under the supervision of the Board of Pharmacy contend that only practical pharmacists can decide upon the correct enforcement of pharmacy and drug laws, and they further contend that the public welfare requires a greater and more general appreciation of the importance of pharmacy which with such intended authority for the Board of Pharmacy is given public expression.

2nd. The authority and standing of the Assistant Pharmacist are much drawn into question. The Preliminary Draft proposes, apart from general education, that an applicant for registration as Assistant Pharmacist should have either two (2) years of practical experience in pharmacy or in the alternative one (1) year of such practical experience and one (1) year of college work, and that he may be in charge of a pharmacy for not more than one (1) day each week. It is proposed that the requirements shall be either two years of practical pharmacy work or two years of college work, and then the far more important proposal is made that the Assistant Pharmacist shall be permitted to conduct a pharmacy without time restriction or limitation so long as a Registered Pharmacist has complete supervision which is not to be measured by the day or the week, but one (1) Registered Pharmacist at least being required for every pharmacy. The argument is advanced, that the Assistant Pharmacist should be given a higher standing with greater rights, this tending to increase the number of assistants, and to decrease the number who desire to conduct pharmacies of their own. In support the contention is made that if an Assistant Pharmacist is qualified to conduct a pharmacy for five (5) minutes, or for a day, he would be qualified to conduct it without any time restriction.

3rd. The Preliminary Draft proposes that the physician, dentist or veterinarian who would compound and dispense his own medicines shall show his qualification to practice pharmacy but would allow those who now are compounding and dispensing their medicines to continue to do so by registration without examination; only those who would newly so engage to be required

* Read before Section on Education and Legislation, A. Ph. A., and the Joint Session with the American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy, Chicago Meeting, 1918.

¹ For the convenience of the members reference is made to the prior report of the Committee, April issue of the JOURNAL, pp. 385-393, and also to reports of the Voluntary Conference to Draft Modern Laws Pertaining to Pharmacy: Volume IV, JOURNAL A. PH. A., pp. 640 and 1431; Volume V, p. 1360; Volume VI, pp. 29 and 38.—EDITOR.

² See April JOURNAL A. PH. A., pp. 385-393

to take an examination before the Board of Pharmacy in the theory and practice of pharmacy such as Assistant Pharmacists are required to pass. Specific exemption is made for doctors, etc., to provide drugs in cases of emergency which are administered to the patient in their presence. That the physician who would practice pharmacy should show qualification is very generally approved, but the objection is raised that legislation of the kind is unobtainable because of medical opposition. It is urged that organized medicine will never agree that a physician should in any respect be under the control of the Board of Pharmacy. Those who urge the need for such legislation say that the objection in part can be met by having the examination in pharmacy conducted by a Board of Pharmacy member, under the supervision of the Medical Boards. They contend that the needs for public safety should be the only consideration, and that the public through its legislature will be the first to demand such qualification when it learns that it does not now exist.

4th. The Preliminary Draft would accept as a fact that when a person has qualified as a Pharmacist, he remains so until the end of his day. It would do away with term re-registration, and in its place it would provide for the annual registration of all pharmacists. The objection is made that this does not enable the Board of Pharmacy to have accurate information regarding all within the State who are authorized to practice pharmacy, and the objection is further raised that a man, though registered as a Pharmacist, who has not practiced pharmacy for ten or twenty years, should not again be permitted to do so without first proving that he has retained his qualification to act as such.

5th. The Preliminary Draft would positively restrict the distribution at retail of all drugs, medicines and poisons to persons who are registered, either as pharmacists, physicians, dentists or veterinarians and drug dealers, with the sole exception that drugs and poisons intended for agricultural, technical or industrial use, may be sold by others. The objection is raised, that no such exception should be made, and that if it is made, it would throw open the doors again for general distribution by unqualified persons. Having in mind that the intended law provides for the registration of drug dealers in districts where there are no registered pharmacists, the question is, whether such exception with reference to the sale at retail of drugs and poisons for agricultural, technical or industrial use is really necessary for public convenience.

6th. The Preliminary Draft provides a definition for Poisons and for Potent Drugs, and further provides that under the definition it shall be the duty of the Board of Pharmacy to name and publish lists of all poisons and potent drugs, these to include all so-called proprietary medicines which are found to contain what under the law would be a Poison or a Potent Drug, and it is then further provided that all such poison or potent drug content shall be shown on the label in ready-made medicines, and in the case of a physician's prescription either when filled by the pharmacist or when filled by the physician himself, shall be kept in the form of a prescription record, or in the alternative be shown on the label. Possibly no other single provision meets with more strenuous objection on the part of some and with equal strenuous approval on the part of others. Those who object to it say that it means merely a formula disclosure, that it is destructive of property rights and without compensating public benefit; those who favor the provision contend, first of all, that it is primarily for the public welfare. They say that it is frequently desirable and necessary for third persons to know what the active ingredients of a medicine may be. They advance the argument that no physician should be allowed to keep as his sole secret, without possible means of knowledge on the part of third persons, what strong drugs he may have dispensed and, from their point of view, it follows of necessity that no proprietary medicine manufacturer should be allowed to place in the hands of the consuming public what may be the most active of drugs, without some means of third persons knowing, both in case of emergency and in case of the ordinary matter of giving advice. Those who favor this partial formula disclosure contend that it is not destructive of property rights, because method of manufacture and content of non-potent drugs will give sufficient protection against competitive misuse.

We beg at this time to again point out that we understand the mission of this Committee to be the presentation of a Draft which includes what reasonably ought to be a part of up-to-date laws pertaining to pharmacy. We do not believe that we should propose the unattainable, but neither do we believe that we should omit a needed present-day requirement simply because the first impression may be that its legislative enactment can not be secured.

In conclusion we beg to urge upon pharmaceutical journals and upon pharmaceutical conventions, as well as the individual pharmacists, to help us with a free expression of opinion regarding the six proposals which are specially referred to herein, and which we again would briefly state as follows:

1st. Shall the enforcement of all laws governing pharmacy be placed with the State Board of Pharmacy under the direct supervision of a Drug Commissioner?

2nd. Shall the authority and standing of the Assistant Pharmacist as such be materially increased?

3rd. Shall the physician who would practice pharmacy be required to prove his qualification as a pharmacist?

4th. Shall the pharmacist be relieved of re-registration, and shall there be an annual registration of pharmacies?

5th. Is it advisable to provide for an exception under which drugs and poisons for agricultural, technical or industrial use may be sold at retail by unqualified dealers?

6th. Should a modern law include a provision requiring that the poison or potent drug content of ready-made medicines be shown on the label, and that such poison or potent drug content in medicines prepared on physician's prescriptions be evidenced either by a written prescription or by record which the dispensing physician is required to keep?

Respectfully submitted,

WILLIAM C. ANDERSON,

H. V. ARNY,

JAMES H. BEAL,

CHAS. H. HURN,

FRANK H. FREERICKS, *Chairman*

REPORT OF THE SPECIAL COMMITTEE ON REGULATIONS FOR TRANSPORTATION OF DRUGS BY MAIL.

Your Committee begs to report that no steps have been taken during the past year by us or by any other organization to enact legislation on the transportation of drugs by mail. The war and conditions arising from it have so overshadowed this subject that quite properly no efforts along this line have been made. The mailing of drugs is still subject, therefore, to the original rulings of the Post Office Department, which depend on laws and regulations that are several years old. They have already been discussed by this Committee and their undesirable features made known to you. Let us continue to devote our full energies to winning the war, returning to the consideration of this subject when victory is ours.

Respectfully submitted,

B. L. MURRAY,

Chairman

REPORT OF THE GENERAL MEMBERSHIP COMMITTEE.

TO THE PRESIDENT AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

The work of the General Membership Committee during the past year has been conducted along the usual lines. Special efforts have been made in Illinois on account of the convention being held in Chicago. In Minnesota, also, Dr. F. J. Wulling and Prof. E. L. Newcomb made a very earnest effort to secure new members which brought excellent results, while New York and Pennsylvania have more than kept up their usual quota of new members.

Although on the whole, the number of new members shows an increase over preceding years, yet a glance over the appended statement will indicate many localities where membership work has lagged. The pressure of the conditions created by the war is largely responsible for this, and it is hoped that with the coming of brighter times a strong impetus will be given to the work of the Membership Committee throughout the country and that the Association may experience a rapid growth.

NEW MEMBERS ELECTED SEPT. 1, 1917, TO SEPT. 1, 1918, AND GROUPED BY STATES AND MEMBERSHIP DISTRICTS.

| District No. 1. | | District No. 2. | | District No. 3. | | District No. 4. | |
|------------------|----|-------------------|-----|-----------------|-----|-------------------|-----|
| Connecticut..... | 2 | New Jersey..... | 7 | Illinois..... | 65 | Alabama..... | 3 |
| Maine..... | 0 | Virginia..... | 8 | Ohio..... | 16 | Arkansas..... | 3 |
| New Hampshire... | 0 | West Virginia... | 1 | Indiana..... | 11 | Cuba..... | 5 |
| Vermont..... | 0 | New York..... | 74 | Kentucky..... | 2 | Florida..... | 10 |
| Massachusetts... | 10 | Maryland..... | 1 | Michigan..... | 5 | Georgia..... | 0 |
| Rhode Island.... | 0 | Dist. of Columbia | 4 | Wisconsin..... | 3 | Louisiana..... | 8 |
| — | — | Pennsylvania... | 62 | — | — | Mississippi..... | 7 |
| Total..... | 12 | Delaware..... | 1 | Total | 102 | Panama..... | 0 |
| | | — | — | | | Oklahoma..... | 3 |
| | | Total | 158 | | | No. Carolina..... | 0 |
| | | | | | | So. Carolina..... | 2 |
| | | | | | | Tennessee..... | 3 |
| | | | | | | Texas..... | 7 |
| | | | | | | Porto Rico..... | 3 |
| | | | | | | — | — |
| | | | | | | Total..... | 54 |
| District No. 5. | | District No. 6. | | District No. 7. | | District No. 8. | |
| Iowa..... | 5 | California..... | 3 | Idaho..... | 0 | Brit. America.... | 1 |
| Missouri..... | 6 | Colorado..... | 3 | Oregon..... | 1 | — | — |
| Kansas..... | 2 | Nevada..... | 0 | Alaska..... | 0 | Total..... | 1 |
| Minnesota..... | 46 | New Mexico.... | 0 | Montana..... | 4 | Philippines..... | 1 |
| Nebraska..... | 0 | Utah..... | 0 | Washington..... | 1 | Foreign Country.. | 4 |
| North Dakota.... | 3 | — | — | — | — | U. S. Navy..... | 2 |
| South Dakota.... | 3 | Total | 6 | Total | 6 | — | — |
| — | — | | | | | Total..... | 7 |
| Total..... | 65 | | | | | | |
| Grand Total..... | | | | | | | 411 |

SUMMARY.

| | |
|------------------------------------------------------------------------------------------------------------------|------|
| Membership August 15, 1917..... | 2640 |
| Losses from August 15, 1917, to September 1, 1918: | |
| By suspension..... | 176 |
| By resignation..... | 164 |
| By death..... | 28 |
| In the service and carried on the rolls without dues and without publications by action of the Association | 54 |
| Total..... | 422 |
| Less members reinstated..... | 15 |
| Net loss..... | 407 |
| New members elected August 15, 1917, to September 1, 1917 | 88 |
| New members elected September 1, 1917, to September 1, 1918 | 411 |
| Total new members..... | 499 |
| Net gain..... | 92 |
| Total membership September 1, 1918..... | 2732 |

Respectfully submitted,

WM. B. DAY,

Chairman General Membership Committee.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 2.

(Continued from p. 1009, November issue.)

Motion No. 1. (On Coöperation with Bureau of Public Health Service in re Venereal Diseases among the Armed Forces of the United States): Moved by W. B. Day, seconded by E. G. Eberle, that the above resolutions be adopted.

In the early part of 1918, the Council approved of the selection of a Committee on Research consisting of Messrs. H. V. Army, G. M. Beringer, J. A. Koch, Henry Kraemer, C. H. LaWall, Fred. B. Power, W. L. Scoville, A. B. Stevens, H. M. Whelpley and Edward Kremers.

This committee was a temporary one and went out of existence after it made its report to a recent annual meeting of the Association, at which time it was decided to establish a permanent Committee on Pharmaceutical Research, the following amendments to the by-laws being made:

"That Article I of Chapter X of the By-Laws of the Association be amended by adding 'a Committee on Pharmaceutical Research,' the article to read, 'There shall be appointed or elected standing committees as follows: A Committee on United States Pharmacopoeia, a Committee on Transportation, a Committee on Resolutions, and a Committee on Pharmaceutical Research, each to consist of ten members, etc.'"

"Also that Article XI be added, to read as follows:

"The Committee on Pharmaceutical Research shall be elected by the Council, two members to serve for a term of five years, two for a term of four years, two for a term of three years, two for a term of two years and two for a term of one year, and after the expiration of the one-year term two members shall be elected annually for a term of five years. The Committee on Pharmaceutical Research shall endeavor to promote research along pharmaceutical lines, and shall advise the Council as to the use of the research funds of the Association."

Motion No. 2. (Nominations for Committee on Pharmaceutical Research): Moved by Dr. F. E. Stewart, seconded by E. Fullerton Cook, that the following be nominated as members of the Committee on Research to be elected by the Council: Messrs. H. V. Army, G. M. Beringer, J. A. Koch, Henry Kraemer, Edward Kremers, C. H. LaWall, W. L. Scoville, A. B. Stevens and H. M. Whelpley.

F. B. Power has found it impossible to serve and additional nominations for the committee are asked.

The election will be held later, the two nominees receiving the highest vote will be elected for five year terms, and the next two highest for the four year term, for the three year term, for the two year term and for the first year term, respectively, according to vote.

Please correct the addresses of the following in list given in previous Council Letter (No. 1): [Corrections were made before printing.—EDITOR.]

J. W. ENGLAND, *Secretary*.

415 N. 33rd Street.

A. PH. A. COUNCIL LETTER NO. 3.

PHILADELPHIA, PA., October 8, 1918.

TO THE MEMBERS OF THE COUNCIL:

Motion No. 1. (On Coöperation with Bureau of Public Health Service in re Venereal Diseases among the Armed Forces of the United States) and Motion No. 2 (Nominations for Committee on Pharmaceutical Research) have each received a majority of affirmative votes.

Motion No. 3 (Nomination of George D. Beal for Committee on Research): Moved by George M. Beringer, seconded by E. G. Eberle, that George D. Beal be nominated for the Committee on Research.

Motion No. 4 (Adoption of Recommendation of the Committee on Finance of September 23, 1918): On motion of W. B. Day, seconded by Dr. F. E. Stewart, it is moved that the recommendations of the Committee on Finance of September 23, 1918, contained in Council Letter No. 2, be adopted.

Motion No. 5 (Election of Members): You are requested to vote on the following applications for membership:

- No. 1. Mrs. Bertha Rudolph, 1501 Penn Street, St. Joseph, Mo., rec. by H. M. Whelpley and E. G. Eberle.
- No. 2. Carl Robert Koeble, 333 Jones Avenue, Burlington, N. J., rec. by George M. Beringer, Jr., and Edgar R. Sparks.
- No. 3. Lawrence Zembsch, Asst. Surgeon U. S. Navy, Great Lakes, Ill., c/o Main Hospital, rec. by Wm. B. Day and E. N. Gathercoal.
- No. 4. Percy Newell Hall, 22 Elm Street, Westfield, Mass., rec. by Theodore J. Bradley and John G. Godding.
- No. 5. George H. Haywood, Osakis, Minn., rec. by E. L. Newcomb and Wm. B. Day.
- No. 6. Charles E. Frosst, 17 Forden Avenue, Westmount, Prov. Quebec, rec. by E. F. Kelly and B. Olive Cole.
- No. 7. Joseph B. Clower, Woodstock, Va., rec. by Wm. B. Day and W. F. Rudd.
- No. 8. George P. Engelhard, 536 South Clark Street, Chicago, Ill., rec. by J. W. England and E. G. Eberle.
- No. 9. Palmer L. Foss, Page, N. Dak., rec. by W. P. Porterfield and Wm. B. Day.
- No. 10. Boleslaw Roman Kozlowski, 4800 So. Loomis Street, Chicago, Ill., rec. by Frank J. Dubsky and Wm. B. Day.
- No. 11. Joseph J. Smailis, 1898 Jos. Campau Avenue, Detroit, Mich., rec. by L. A. Seltzer and A. A. Wheeler.
- No. 12. Miguel Sanchez, Media Luna, Oriente, Cuba, rec. by H. M. Whelpley and J. W. England.
- No. 13. Philo LaMont Burrin, c o Eli Lilly & Co., Indianapolis, Ind., rec. by J. E. Seybert and W. B. Day.
- No. 14. John H. Nankivell, Captain 157th U. S. Infantry, A. E. F., rec. by Wm. B. Day and J. W. England.
- No. 15. Theodore Konzelman, 146 Grove Avenue, Highland Park, Mich., rec. by Leonard A. Seltzer and A. A. Wheeler.
- No. 16. Louis Edward Bangert, 1901 Belmont Avenue, Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.
- No. 17. Wallace Joseph Fornhals, 730 W. Madison Street, Ottawa, Ill., rec. by C. W. Lutz and Wm. B. Day.
- No. 18. Hearn Howell Melton, Broad Street, Thomasville, Ga., rec. by R. Thomas and F. V. Eidson.
- No. 19. Richard Harris, 383 W. Main Street, Plymouth, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 20. Patrick A. Roan, 159 E. Main Street, Plymouth, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 21. G. Grobelewski, 241 E. Main Street, Plymouth, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 22. Thos. J. Evans, 79 Center Avenue, Plymouth, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 23. Harry C. Hughes, 15 W. Main Street, Plymouth, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 24. George J. Durbin, 139 E. Main Street, Plymouth, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 25. Fred J. Crandall, 217 Lincoln Street, Wilkes-Barre, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 26. John J. Shovelin, 691 E. Northampton Street, Wilkes-Barre, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 27. B. Drapewski, 102 E. Northampton Street, Wilkes-Barre, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 28. Thos. H. Peters, Cary Street, Plains, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 29. George Dupree, Sunbury, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 30. James F. Kane, 6 S. Main Street, Pittston, Pa., rec. by E. L. Owens and J. D. Morgan.

- No. 31. Louis L. Filar, 809 N. Washington Street, Wilkes-Barre, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 32. George Gibbons, Jr., 125 Grove Street, Wilkes-Barre, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 33. Edward P. Gannon, 65 Prospect Street, Wilkes-Barre, Pa., rec. by E. L. Owens and J. D. Morgan.
- No. 34. Louis William Koch, Greenbush, Minn., rec. by E. L. Newcomb and Wm. B. Day.
- No. 35. Arthur Theodore Blomquist, Osaks, Minn., rec. by E. L. Newcomb and Wm. B. Day.
- No. 36. Ira Perkins King, 112 S. Main Street, Stillwater, Minn., rec. by E. L. Newcomb and Chas. H. Rogers.
- No. 37. Westwood D. Case, Canton, Minn., rec. by E. L. Newcomb and Chas. H. Rogers.

J. W. ENGLAND,

Secretary.

415 N. 33RD STREET.

A. PH. A. COUNCIL LETTER NO. 4.

PHILADELPHIA, PA., November 5, 1918.

TO THE MEMBERS OF THE COUNCIL:-

Motion No. 3 (Nomination of George D. Beal for Committee on Research), Motion No. 4 (Adoption of Recommendations of the Committee on Finance) and Motion No. 5 (Election of Members; applications Nos. 1 to 37 inclusive) have each received a majority of affirmative votes.

Chairman Hopp has appointed the following committees:

Committee on Conservation: Hugo H. Schaefer, *Chairman*, New York; Theo. J. Bradley, Boston; E. Fullerton Cook, Philadelphia; H. A. B. Dunning, Baltimore; and H. C. Fuller, Washington, D. C.

Advisory Committee for Sailor and Soldier Pharmacists: Frank H. Freericks, *Chairman*, Cincinnati; Clarence O. Bigelow, New York; Edward Spease, Cleveland; H. C. Christensen, Chicago; and Charles E. Caspari, St. Louis.

Committee on Drug Store Classification: Jacob Diner, *Chairman*, New York; E. F. Kelly, Baltimore; Dr. F. E. Stewart, Philadelphia; E. Von Hermann, Chicago; and L. A. Seltzer, Detroit.

General Secretary Day writes:

"I desire to offer the following motion which has the approval of the Finance Committee; Professor Koch seconds the motion:

'Moved that an additional appropriation of \$150 be made for the budget item for the National Drug Trade Conference.

"In explanation, I would say that it has been necessary to hold a second meeting of the Conference and we will of course have to meet the expenses of our delegates. Our present budget item of \$200 is overdrawn thereby."

The above will be known as *Motion No. 6 (Additional Appropriation of \$150 for National Drug Trade Conference)*.

The following nominations for the Committee on Pharmaceutical Research were made in Council Letters Nos. 2 and 3: H. V. Arny, G. M. Beringer, George D. Beal, J. A. Koch, Henry Kraemer, Edward Kremers, C. H. LaWall, W. L. Scoville, A. B. Stevens and Dr. H. M. Whelpley.

The election will now be held (voting card enclosed), the two nominees receiving the highest vote will be elected for five year terms, and the next two highest for the four year term, for the three year term, for the two year term and for the first year term, respectively, according to vote.

Motion No. 7 (Election of Members). You are requested to vote on the following applications for membership:

- No. 38. Louis Gardier, 317 South Main Avenue, Scranton, Pa., rec. by C. H. LaWall and Ivor Griffith.
- No. 39. Julia Runkel, 38 S. Dearborn St., Room 643, 1st Natl. Bank Bldg., Chicago, Ill., rec. by Wm. Gray and Wm. B. Day.

- No. 40. Josephine Marion Dyniewicz, 1535 N. Hamlin Ave., Chicago, Ill., rec. by E. N. Gather-coal and Wm. B. Day.
- No. 41. Hattie Adela Dyniewicz, 1535 N. Hamlin Ave., Chicago, Ill., rec. by E. N. Gather-coal and Wm. B. Day.
- No. 42. Charles F. Godlewski, 1800 West 3rd Street, Chester, Pa., rec. by Charles H. LaWall and E. Fullerton Cook.
- No. 43. Fred D. Hileman, 482 Carey Ave., Wilkes-Barre, Pa., rec. by Jos. D. Morgan and J. W. England.

J. W. ENGLAND.
Secretary.

415 NORTH 33RD STREET.

A. PH. A. COUNCIL LETTER NO. 5.

PHILADELPHIA, November 9, 1918.

TO THE MEMBERS OF THE COUNCIL:

The following communication has been received by the Secretary of the Council from Frank H. Freericks, Chairman of the Advisory Committee for Soldier and Sailor Pharmacists:

"In behalf of the Advisory Committee for Soldier and Sailor Pharmacists, I am directed by unanimous vote of the committee to request from Council authority for the Committee to accept contributions from the drug trade in order that it may properly carry out its work. Will you have the kindness to submit this matter for a vote to Council, if such be necessary. Time is pressing, and we should like much to get our work under way. When this is submitted for a vote, I personally would also ask that Council authorize me to appoint Mr. Clarence O. Bigelow as treasurer, for the committee, or if he, because of other duties cannot serve, that then I be authorized to appoint one of the other members of the committee as its treasurer.

"In order that the members of Council will have a fair understanding of the situation, I am sending you herewith sufficient copies of an explanatory letter, so as to enable you to furnish every Council member with a copy. May I ask of you the very great kindness to submit this matter at once, if you possibly can."

What is the wish of the Council?

J. W. ENGLAND.
Secretary.

415 N. 33RD STREET.

P. S. The following communication has just been received by the Secretary of the Council from James H. Beal:

"I have just had the pleasure of reading the Circular Letter of the Advisory Committee* of the A. Ph. A., for Soldier and Sailor Pharmacists, and I am heartily in favor of the proposed work set forth in the circular, and offer the following motion:

"1st: That the Council approve of the proposed service to Soldier and Sailor Pharmacists, as set forth in the Circular Letter of the Advisory Committee of November 6th.

"2nd: That the Council hereby authorizes the committee to accept contributions for the purpose of carrying on its work.

"3rd: That the committee be authorized to name its own treasurer to have custody of and to disburse the funds so collected."

The above motion will be regarded as *Motion No. 8 (Authorization of Advisory Committee for Soldier and Sailor Pharmacists)*, it is seconded by E. G. Eberle.

J. W. ENGLAND.

* The substance of this Circular Letter will be found elsewhere in this issue.—EDITOR.

A. PH. A. COUNCIL LETTER NO. 6.

PHILADELPHIA, November 26, 1918.

TO THE MEMBERS OF THE COUNCIL:

Motion No. 6 (Additional Appropriation of \$150 for National Drug Trade Conference, Motion No. 7 (Election of Members: applications Nos. 38 to 43, inclusive), Motion No. 8 (Authorization of Advisory Committee for Soldier and Sailor Pharmacists), have each received a majority of affirmative votes.

The following Committee on Pharmaceutical Research (Council Letters Nos. 2 and 3) has been elected: For five year term—H. V. Army and C. H. LaWall; for four year term—Edward Kremers and Julius A. Koch; for three year term—Henry Kraemer and George M. Beringer; for two year term—Wilbur L. Scoville and A. B. Stevens; for one year term—Dr. H. M. Whelpley and George D. Beal.

Motion No. 9 (Election of Members). You are requested to vote on the following applications for membership:

- No. 44. A. W. Sharping, Arlington, Minn., rec. by E. L. Newcomb and F. J. Wulling.
- No. 45. John H. Farlow, Berlin, Md., rec. by W. W. Rose and Wm. B. Day.
- No. 46. Orville Andrew Beath, 815 University Ave., Laramie, Wyo., rec. by E. G. Eberle and W. B. Day.
- No. 47. Charles F. Fischer, 262 Cornelia Street, Brooklyn, N. Y., rec. by Hugo H. Schaefer and H. V. Army.
- No. 48. Edward A. Wickham, 482 Broad Street, Newark, N. J., rec. by William Mansfield and Edward A. Sayre.
- No. 49. Charles Henry Thompson, A. E. C. Hospital, Anchorage, Alaska., rec. by Z. J. Loussoe and Wm. B. Day.
- No. 50. Kenneth A. Bartlett, York & Washington Sts., care of E. R. Squibb Co., Brooklyn, N. Y., rec. by Dr. Hugo Schaefer and Mrs. May O. C. Davis.
- No. 51. Mrs. John A. Dunn, 329 Stratford Road, Brooklyn, N. Y., rec. by H. M. Whelpley and J. W. England.
- No. 52. Mildred Lillian Gilmore, 21 Webster St., Allston, Mass., rec. by J. E. Martel and A. C. Wagner.
- No. 53. Fred P. Lehning, 1717 Commercial Ave., Cairo, Ill, rec. by Dr. H. M. Whelpley and J. W. England.
- No. 54. Arthur L. Buzzell, 550 Field Ave., Detroit, Mich., rec. by Frank G. Ebner and Harry B. Mason.
- No. 55. Ernest Frank Bundy, 177 Jos. Campan Ave., Detroit, Mich., rec. by E. J. Starwalt and F. F. Ingram, Jr.

J. W. ENGLAND,

Secretary.

415 N. 33RD STREET.

COMMERCIAL VIBURNUM BARKS AND PREPARATIONS.

In the November issue of *THIS JOURNAL* a paper on "Commercial Viburnum Barks and Preparations" was published, the proof of which, through some misunderstanding, failed to reach me, and, through sickness, did not receive the full attention of my coöperators.

The following corrections are desired: The letters B and C in Fig. 1 should be reversed, so that B refers to the Mercury, and C to the Zinc salt. Mercurous nitrate and not mercuric nitrate, as stated, was used in the microchemical experiments. The following additional references to Rusby and Sayre, considered in the manuscript, but not included in the bibliography, will be of interest:

Sayre, L. E., *Am. J. Pharm.*, 67, 387-94 (1895); 68, 225-32 (1896).

Rusby, H. H., *Jour. New York Botanical Garden*, 155-, (1915).

———, *J. A. PH. A.*, 5, 538 (1916); 6, and especially 6409 (1917).

(Signed) A. VIEHOEVER,

Pharmacognocist, Bureau of Chemistry, U. S. Dept. of Agric.,

Care of Dept. of Chemistry, Urbana, Ill.

EDITORIAL NOTES

Editor: F. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman*: G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on Progress of Pharmacy, *ex-officio*.

Editorial Office: 253 Bourse Building, Philadelphia, Pa.

THE PHARMACEUTICAL CORPS OF THE JAPANESE ARMY.

The pharmaceutical corps of the Japanese Army does considerable manufacturing of tablets, galenical preparations, and such dressings as experience has taught can not be purchased with safety and from stock that may have been on hand for a more or less indefinite period. Part of the corps is the Medical Supply Bureau, which selects and standardizes materials, appliances and apparatus. The bureau is made up of Major-General Masukichi Hata, chief of the Pharmaceutical Corps and some of the higher pharmaceutical and veterinary officers. The bureau does not include medical officers, however, the pharmaceutical corps is part of the Medical Department, but the pharmacist is quite independent of the medical officer.

RESPONSIBILITY OF DRUGGISTS IN SALE OF REMEDIES FOR SELF-TREATMENT OF VENEREAL DISEASE.

The United States Public Health Service has issued *Venereal Disease Bulletin No. 2*, which probably has reached the members. There is no question that there will be a hearty coöperation of the members with the Surgeon General. The following pledge for signature has been sent out:

PLEDGE.

Appreciating the seriousness of venereal diseases among the armed forces of the United States, as indicated by the reports of the Surgeon General of the United States Army, and desirous of doing whatever is requested by the Government in the war emergency, this store hereby pledges its best efforts in co-operating with the United States Public Health Service and all health officials to reduce the venereal disease scourge among civilians, and specifically does it agree:

1. Not to prescribe or recommend any remedy for a venereal disease.
2. After this date not to purchase a "PROPRIETARY REMEDY" to be sold to

the public for the self-treatment of a venereal disease, and not to sell any such "remedy" after January 15, 1919.

3. To REFILL only such prescriptions for the treatment of venereal disease as were given originally to the customer by a reputable physician who is still in charge of the case.
4. To cause literature furnished by the Surgeon General to be handed to every person asking, without a physician's prescription, for a remedy customarily confined to the treatment of a venereal disease. Further, to direct the applicant to a reputable physician, to a board of health, or to an approved venereal clinic.

The trade of this store numbers approximately people per week.

(Name of Store).....

(By).....

(Street).....

(City and State)

Date 19..

The closing paragraph of the Bulletin reads:

"In directing men and women suffering from venereal diseases along the lines above suggested, druggists of the country will build for themselves a public confidence of great value and at the same time they will know personally that their best efforts are being given toward the elimination of the venereal scourge in their respective communities, both for the best interests of the civilian population and for the greater fighting efficiency of the armed forces of the nation."

The coöperation of the national and state associations has been promised for this effort to eliminate the venereal scourge.

COÖPERATION OF MEDICINE WITH PHARMACY AND CHEMISTRY IS NECESSARY.

That America is the logical country to be the center of medical learning after the war is the opinion of Dr. Frederick Tilney, professor in the College of Physicians and Sur-

geons, Columbia University. After speaking of the changes that had been brought about by the war, the discoveries, and the need of advanced research, he referred to some of the defects in American Medicine. He said:

"The most obvious of these, perhaps, is that we have permitted our vision to become near-sighted and locally introspective. Because of this limited view, we have gained no sense of the possibilities and proportion of our mission; it would even seem that we had no realization of a mission at all. A complacent isolation of the larger medical centers has cultivated an exclusiveness which does not promote mutual understanding or inspire the confidence which engenders the spirit of progress.

"It may be that the first step to secure this end will be a federation of American medical colleges and institutes. A council representative of these institutions would coöperate in the interests of medical education and medical science." * * *

"If the country is to avail itself of the obvious advantages of universal military training after the war, military medicine must be still further developed in the colleges. It seems advisable that permanent courses in military medicine be introduced into the curriculum of medical schools.

"In so large an undertaking the work is not ours alone. The Nation already begins to understand our purposes. When it appreciates the full importance of our relation to its welfare we shall, as a recognized economic necessity, have its liberal support. It is especially necessary in all parts of the country that those who have the interests of medical development in their keeping shall make their efforts decisively constructive."

We are ready to admit the progress medicine has made and the opportunities that lie before it, but the opportunity should be given both to pharmacy and chemistry to coöperate. These are times when related interests should work together for common purposes. At the recent meeting of the New York Section of the American Chemical Society, Dr. Charles H. Herty said: "We are about to enter into a new era for chemistry in this country and the great mass of human energy that has been directed to the destruction of human life is now about to be turned into an agency for its conservation.

"It has been the dream of many prominent chemists in New York and elsewhere to estab-

lish a national institute where the chemist could coöperate with the medical profession and the drug trade in producing compounds for the alleviation of human suffering."

It is realized that along the lines of chemistry there is much yet to be discovered and developed. An institution in charge of the best brains in its respective trade or profession, it was pointed out, would be able to achieve beneficial results.

'There is opportunity and glory' enough for all!

A SHORT-SIGHTED DRUGGIST.

The *Journal of the A. M. A.* comments editorially, under above caption, on the experience and conclusions of a man who bought an N. F. antiseptic for which he paid the price that a related proprietary could be bought for. A comparison of price between the two products justifies the conclusions of the *Journal*, but taken by itself there may be different views relative to the selling price of the article purchased. It must be admitted that there are druggists who do not encourage the dispensing of U. S. P. and N. F. preparations to the extent they should, and such criticism should prove of value. Of course, there are others who are guilty of omissions which might be brought into the discussion, but we will allow the quoted comment to carry a message.

PATRIOTIC PRESCRIPTIONS.

Dr. John J. J. in *Nation's Business* says that now is the time for the American manufacturer to intensify his advertising propaganda of American-made chemicals. No similar expenditure in legitimate advertising will bring such results to the advertiser and to national welfare. "Patriotic prescriptions" may to-day well become a slogan of the medical profession.

May we repeat the request in our editorial, that members induce manufacturers to use the JOURNAL OF THE A. PH. A. for their publicity campaign?

DECIMAL COINAGE IN GREAT BRITAIN.

A decimal coinage bill, providing for a rearrangement of the British money system on a decimal basis, has been introduced in the House of Lords by Lord Southwark. The bill is the result of conferences between two great business organizations, the Institute of

Bankers and the Associated Chambers of Commerce. Both organizations gave their support to the scheme by a unanimous vote.

The bill provides for the continuance of the sovereign and the florin, the latter being one-tenth of the sovereign, or pound. A new coin, one-hundredth of a pound, will make its appearance, being practically equivalent to the American nickel. The new farthing will be worth slightly less than the present farthing (approximately one-half cent), being exactly one-thousandth of a pound. Five farthings (instead of four as now) will make up the new penny.

With such strong endorsement the prospects are bright for the passage of the measure, and once Great Britain has decimal coinage one of the great barriers to decimal weights and measures will have been removed. The decimal movement is not swift, but it seems to possess a most encouraging steadiness in the forward direction, and to enlist in its behalf men of intelligence, merit and sound judgment.—*The Valve World*.

Several of the departments of this Section are omitted from this issue on account of the inclusion of the annual index.

OBITUARY.

CHARLES WESLEY SNOW.

Charles W. Snow, vice-president of Gibson-Snow Drug Company, died at his home in Syracuse, N. Y., November 9, at the age of 82 years. The deceased was born at Peterboro, N. Y.; the parents moved to Syracuse when Charles was five years old and here he

Co., of Albany, and Gibson Drug Company, of Rochester, in the corporation of Gibson-Snow Drug Company, in 1916.

Mr. Snow was financially and officially interested in several banking institutions and other business organizations and identified with many charitable institutions and civic organizations. He was a 33° Mason; for many years a trustee of May Memorial Church, and a director of the Board of Associated Churches and Charities. He is survived by his widow, a daughter, Mrs. Irving S. Merrell, and a son, Nelson P. Snow.

Mr. Snow joined the American Pharmaceutical Association in 1876.

CHARLES FULLER.

Charles Fuller, vice-president of Fuller-Morrison Company, Chicago, died suddenly, of angina pectoris, while on a visit to the home of his father, Honorary President A. Ph. A., Oliver F. Fuller, who had just returned from a visit to New York. Charles Fuller was born in Peekskill, N. Y., August 12, 1868, where he was educated. After graduation from Peekskill Military Academy he went to El Paso, Texas, where he was engaged in the drug business for several years. Thereafter he returned to Chicago and has since been continuously associated in business with his father. Mr. Fuller married Miss Mary Antoinette Hait, of Peekskill, in 1892, who with two sons survive the deceased. Charles Fuller was a member of the American Pharmaceutical Association, of a number of civic and social organizations, among the latter the Chicago Veteran Druggists' Association, of which his aged father is honorary president.



Courtesy of P. O. & D. Reporter
CHARLES W. SNOW.

continued to reside. At the age of 15 years, Mr. Snow entered the employ of W. B. Tobey and four years later was admitted to partnership. In 1866 he established the firm of C. W. Snow & Co., which was continued by the consolidation of this firm with Walker-Gibson

A grandson of Honorary President Oliver F. Fuller, son of Frank F. Fuller, a Lieutenant in the U. S. Aviation Service, in France, was reported among the missing, September 29. We are indebted for these data to Fra. Wilhelm Bodemann, and express the sympathy of the Association to our honored member and family in these bereavements.

LIEUTENANT COLONEL E. F. HARRISON.

Many of our members may not have recognized in the announcement of his death, November 6, by Associated Press, that Lieut. Col. E. F. Harrison, head of the British Chemical Warfare Department, was the distinguished English pharmacist. He joined the British Army as a private in May 1915, and immediately became connected with the chemistry research bureau. He developed the protective apparatus against gas attacks and the whole organization has lately been in his hands. In this work he displayed brilliant resourcefulness. His death, doubtless, was hastened by his devotion to the work he was engaged in. The Council of the British Pharmaceutical Society passed the following resolution, which speaks of some of his activities as pharmacist:

"That this Council receives with profound sorrow the intelligence of the death of Lieut. Colonel E. F. Harrison, F.I.C., C.M.G., one of the most distinguished graduates of the School of Pharmacy, and a brilliant and consistent leader and worker in pharmaceutical and chemical science. As Bell Scholar, prizeman, demonstrator, investigator, examiner, teacher and adviser his career in pharmacy has been characterized by singular and unvarying excellence, and his services to his chosen profession will rank high in the records of pharmaceutical history. The council recalls with pride the immense value of Lieut. Colonel Harrison's knowledge, experience, and organizing ability to the nation at the crisis of its fate, and with mournful satisfaction records the recognition by His Majesty of those ungrudging and invaluable contributions to the defense of the realm. With the passing of this notable pharmacist the Pharmaceutical Society loses a loyal and able leader, his colleagues an honored associate and his friends a staunch and beloved personality."

LIEUTENANT CARL H. HEEBNER.

Aviator Carl H. Heebner, son of Prof. C. F. Heebner, dean of Ontario College of Phar-

macy, and member of the American Pharmaceutical Association, was killed in action and while engaged in battle. Lieutenant Heebner had been shot down three times before the final engagement, but managed on each of these occasions to make his way back to the lines. He was about to be gazetted as captain when he met his untimely end.

HENRY WILSON PEGG.

We have been advised by member John Lohmann, of Kingston, Pa., of the death of Henry W. Pegg. The deceased had been engaged in the drug business with Mr. Lohmann, and he speaks of him as a faithful, honest, conscientious clerk, who had the esteem and friendship of the patrons of the store. Mr. Pegg attended Scio College and later the Pittsburg College of Pharmacy. He joined the American Pharmaceutical Association in 1908.

CLIFFORD O. MILLER.

Clifford O. Miller, chemist of the Maryland State Board of Health, died at his home in Baltimore, October 31, of pneumonia following influenza. The deceased was born in Portsmouth, Ohio, in 1890. He came to Baltimore in 1907 to attend the Maryland College of Pharmacy, from which institution he graduated with high honors, receiving three of the four medals awarded by the college that year.

Dr. Miller became connected with the Maryland State Board of Health in 1913, and had been elected to the faculty of the Maryland College of Pharmacy last summer. He was a member of the Masonic bodies, both in the York and Scottish Rite.

He is survived by his widow, parents and one sister. The deceased joined the American Pharmaceutical Association in 1912.

LOUIS EMANUEL, JR.

Louis Emanuel, Jr., son of Louis Emanuel, member of the American Pharmaceutical Association, died November 4 of pneumonia. The father and mother are frequent attendants of the A. Ph. A. meetings and the former has held membership since 1878.

The deceased was 32 years of age, and was engaged in the drug business at Pittsburg, Pa. He is survived by his parents, wife and a daughter.

The strenuous work and constant attention to serve others during the recent influenza epidemic, exacted a further sacrifice, by death, of many devoted pharmacists.

THE PHARMACIST AND THE LAW.

SECTION 472, POSTAL LAWS AND REGULATIONS.

Sec. 472. 1 All kinds of poison, and all articles and compositions containing poison and all poisonous animals, insects, and reptiles, and explosives of all kinds, and inflammable materials, and infernal machines, and mechanical, chemical, or other devices or compositions which may ignite or explode, and all disease germs or scabs, and all other natural or artificial articles, compositions, or materials of whatever kind which may kill, or in any wise hurt, harm, or injure another, or damage, deface, or otherwise injure the mails or other property, whether sealed as first-class matter or not, are hereby declared to be non-mailable matter, and shall not be conveyed in the mails or delivered from any post-office or station thereof, nor by any letter carrier; but the Postmaster-General may permit the transmission in the mails, under such rules and regulations as he shall prescribe as to preparation and packing, of any articles hereinbefore described which are not outwardly or of their own force dangerous or injurious to life, health, or property: Provided, That all spirituous, vinous, malted, fermented, or other intoxicating liquors of any kind are hereby declared to be non-mailable and shall not be deposited in or carried through the mails. Whoever shall knowingly deposit or cause to be deposited for mailing or delivery, or shall knowingly cause to be delivered by mail according to the direction thereon, or at any place at which it is directed to be delivered by the person to whom it is addressed, anything declared by this section to be non-mailable, unless in accordance with the rules and regulations hereby authorized to be prescribed by the Postmaster-General, shall be fined not more than one thousand dollars, or imprisoned not more than two years, or both; and whoever shall knowingly deposit or cause to be deposited for mailing or delivery, or shall knowingly cause to be delivered by mail according to the direction thereon, or at any place at which it is directed to be delivered by the person to whom it is addressed, anything declared by this section to be non-mailable, whether transmitted in accordance with the rules and regulations authorized to be prescribed by the Postmaster-General or not, with the design, intent, or purpose to kill, or in any wise hurt, harm, or injure another, or damage,

deface, or otherwise injure the mails or other property, shall be fined not more than five thousand dollars, or imprisoned not more than ten years, or both.

2. (a) Spirituous, vinous, malted, fermented, or other intoxicating liquors of any kind, poisons of every kind, and articles and compositions containing poison (except as prescribed in the fourth paragraph hereof), and poisonous animals, insects, and reptiles, corrosive materials, fireworks, and explosives of every kind, and inflammable materials liable to cause fire by self-ignition through friction, through absorption of moisture, or through spontaneous chemical changes, and infernal machines, any mechanical, chemical, or other devices or compositions which may ignite or explode, and disease germs or scabs (except as prescribed in Sec. 473), and other natural or artificial articles, compositions, or materials of whatever kind which may kill or in anywise hurt, harm, or injure another, or damage, deface, or otherwise injure the mail or other property, live animals, insects, birds or fowls (except as prescribed in Sec. 473), fresh hides or pelts, or any articles exhaling bad odor, whether sealed as first-class matter or not, shall not be admitted to the mails.

(b) Inflammable liquids and substances, such as paints, varnishes, automobile tire-repair outfits containing rubber cement, etc., that are not liable to cause fire by self-ignition through friction, through absorption of moisture, or through spontaneous chemical changes, and are not poisonous or explosive or unmailable for reasons other than their inflammability, shall be accepted for transmission in the domestic mails, when in quantities of not more than four ounces and when contained in tightly closed metal tubes or cans and packed in strong papier mache tubes or in boxes made of good quality double-faced corrugated pasteboard. The word "inflammable" and the proper name of the article must be plainly marked on the outside of the package.

(c) Substances mentioned in the preceding paragraph (b) when in larger quantities shall be accepted for transmission in the domestic mails when in tight and strong metal containers enclosed in tight and strong outside wooden boxes or cases; provided, that the maximum quantity of any inflammable liquid packed in one outside container must not exceed one

gallon when the flash point is 20° F., or below, and must not exceed five gallons when the flash point is above 20° F., and below 80° F., and the containers must not be entirely filled—not less than two percent of their capacity to be left vacant. The proper name of the inflammable substance contained therein must be plainly marked on the outside of the package and caution labels (red for liquid and yellow for solids) must be attached thereto by the shipper. These caution labels must be diamond-shaped, each side four inches long, with the wording printed in black letters inside of a black-lined border measuring three and a half inches on each side. The wording on the red labels to be "Notice to postal employees. Caution. Keep away from fires, stoves, radiators, lighted matches, lanterns, and direct sunlight. Any leaking package must be removed to a safe place. This is to certify that the above articles are properly described by name and are packed and marked and are in proper condition for transportation according to the regulations prescribed by the Post-Office Department.

....."
(Shipper's name)

The wording on the yellow labels to be "Notice to postal employees. Caution. Keep fire and light away. Sweep up and remove carefully contents of broken packages. This is to certify that the above articles are properly described by name and are packed and marked and are in proper condition for transportation according to the regulations prescribed by the Post-Office Department.

....."
(Shipper's name)

All such parcels to be handled outside of mail bags.

3. Liquids not spirituous, vinous, malted, fermented, or otherwise intoxicating (including samples of altar or communion wine used in church services), and not liable to explosion or spontaneous combustion or ignition by shock or jar, and not inflammable, fruits or vegetable matter liable to decomposition, comb honey, soft soap, pastes or confections, ointments, salves and articles of similar consistency, shall be admitted to the mails for transmission in the domestic mails when enclosed in packages in conformity with the conditions prescribed in Sections 474 and 475.

4. Medicines and anesthetic agents which are not outwardly or of their own force dan-

gerous or injurious to life, health or property and not in themselves unmailable (see Secs. 454 and 480), may be admitted to the mails for transmission in the domestic mails when enclosed in packages in conformity with the conditions prescribed in Section 474: Provided, That the terms "medicines" and "anesthetic agents" shall not be construed to mean poisons. Provided, further, That the article mailed bears the label or superscription of the manufacturer thereof, or dealer therein, or of the licensed physician, surgeon, dentist, or veterinarian preparing or prescribing the same.

DEFINITION OF A "POISON."

Second Assistant Postmaster-General Otto Praeger, in a communication under date of November 23, to Smith, Kline & French Company, of Philadelphia, states:

"You ask what is the definition of a poison within the meaning of the Postal Laws and Regulations, and it is desired to say that any substance which is *required by law or the exercise of ordinary prudence to be labeled 'poison'** is considered to be poisonous and unmailable. Medicines containing cocaine, or more than two grains of opium, or more than one grain of codeine, or more than one-quarter of a grain of morphine, or more than one-eighth of a grain of heroine to the ounce, are considered to be poison and unmailable."

METRIC SYSTEM IN COMMERCE BETWEEN U. S. AND SOUTH AMERICA URGED BY INTERNATIONAL HIGH COMMISSION.

As a means of facilitating and stimulating commerce between the United States and Latin-American countries the use of the metric system is recommended in a resolution adopted by the United States Section of the International High Commission, of which Secretary McAdoo is chairman. The resolution adopted by the commission is as follows:

The United States Section of the International High Commission, having in view the present efforts to bring about the exclusive use of the metric system of weights and measures within the jurisdiction of the United States, resolves:

I. That in the opinion of the section the adoption of that system would be productive

* Italics ours

of great advantage in the commercial relations of the United States with the other American republics.

II. That the secretary of the section be

directed to communicate a copy of a report to the chairmen of the proper committees of the Senate and the House of Representatives.

BOOK NOTICES AND REVIEWS.

A Text-Book of Chemistry.—*Intended for the Use of Pharmaceutical and Medical Students.* By Samuel P. Sadtler, Ph.D., LL.D., Virgil Coblenz, Ph.D., F.C.S., and Jeannot Hostmann, Ph.G. Fifth Edition, revised and rewritten. J. L. Lippincott Company. Philadelphia and London. 765 pages. Price, \$5.50.

The many changes and improvements in manufacturing processes, as well as the almost revolutionary changes in chemical activities, in all directions, brought about by the world war, have made the revision of almost any chemical text a matter of considerable labor.

In order to meet these conditions the present edition of this well-known and popular text-book has therefore been largely rewritten and the book shows a great number of changes. Much new matter has been added and much of that which has become obsolete has been withdrawn.

The changes in Part I devoted to Elementary Physics are particularly noticeable, the entire part having been rewritten by Prof. Jeannot Hostmann, of the Department of Pharmacy, of Columbia University. The matter is clear and concise and covers the field of special interest to pharmacy students well.

The sections on Inorganic Chemistry have been brought up to date by Prof. Virgil Coblenz, who has been in close touch with the manufacturing side of chemistry for a number of years, and therefore specially qualified for this work.

A chapter on electrolysis and its applications, describing many of the latest manufacturing processes now in use, has been added.

The section on Organic Chemistry has been brought up to date, but one is rather disappointed not to find any mention of such substances as the chloramines, dichlorethylsulphide, etc.

The book is especially well adapted to the needs of pharmacists and pharmacy students and will undoubtedly find a large field of usefulness.

J. A. KOCH.

PUBLICATIONS RECEIVED.

HYGIENIC LABORATORY—BULLETIN NO. 112, APRIL 1918:

I. *Phenols as Preservatives of Antipneumococcic Serum. A Pharmacological Study.* By Carl Voegtlin.

II. *The Nature of Contaminations of Biological Products.* By I. A. Bengtson.

III. *Studies in Preservatives of Biological Products. The Effects of Certain Substances on Organisms Found in Biological Products.* By M. H. Neill.

IV. *The Effect of Ether on Tetanus Spores and on Certain Other Microorganisms.* By H. B. Corbitt.

Proceedings of the Thirty-ninth Annual Convention of the Texas Pharmaceutical Association held in Waco, Texas.

Bulletin, Oregon Agricultural College, No. 283; also an illustrated anniversary number, showing fifty years of progress.

Studies from the Research Laboratory, of Parke, Davis & Co. "The Hypodermic Use of Iron," "The Influence of the Method of Administration upon the Degree of Toxicity of Strophanthus Preparations," "Studies on Derivatives of Trihalogentertiary Butyl-Alcohols."

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Journal of the American Pharmaceutical Association
Vol. 5, (1911)

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